A decade study of the top performing global listed companies (1,000% in 10 years)

GLOBAL OUTPERFORMERS

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2022

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Executive Summary

Since the creation of the first modern stock market in 1611, economies have developed marketplaces to buy, sell and invest in shares of companies that shape how the world functions. Technology and digitalisation meant financial institutions and investors no longer needed a physical space, paper or even their voice to trade these shares. The holding period of shares also decreased; once an eight-year average holding period is now only 5.5 months. Innovative trading strategies, access to leverage, passive investing and algorithms also play a much more significant role within capital markets and have many implications.

Despite the changes and progress we have experienced, some principles remained constant; future earnings and cash flows drive the stock market returns over the long term.

This research aims to examine history to understand what works and drives the best companies, by studying the past decade and assessing the companies that returned more than 1,000%. We then split our analysis into four parts. In the first part, we conducted a factor analysis via a quantitative top-down assessment of the 446 companies that returned more than 1,000%. Critical factors such as profitability, growth, multiples and size were studied to determine if there are contributing qualities or attributes among outperformers. The results in this section can help with your searching and screening process for future outperformers.

The second section examines the global outperformers from a geographical viewpoint. We split the world into 13 economic regions and assessed the macro and micro factors that may have driven their overall returns. Our approach in this section is more qualitative, and we focus on answering the big questions, such as why India has been the best-performing country since the start of the 21st century, why smaller populated countries like Israel and Sweden performed better than more populous countries or why Mexico was missing despite being the 15th largest economy in the world. The goal here is to enrich our perspectives of global investing and capital allocation from a geographic view.

The next chapter, which is the most extensive section, explores global outperformers from an industry lens. We divide the stock market into the 11 sectors (defined by Global Industry Classification Standard GICS) and investigate which sectors did better, why they did and what it means for future global capital allocation. We also included case studies of 26 companies analysing their respective business models, investment cases and lessons to be learnt about investing in outperformers. We added relevant snapshots of their financial statements and other metrics that provide an accounting perspective of investing in outperformers. As you will see, investment ideas came from unlikely areas like emerging market airports, South Korean music labels, Nordic farmers, and Greek energy companies. We explored each of these in the case studies.

Finally, we conclude our research by sharing ten lessons we learned from the overall study. Our goal is to be better investors of the future, not the past, and we review how the information and wisdom gained from the assessment of history can make us better investors for the future.

What this research does not answer

While we will learn an enormous amount about global capital allocation in this research, we recognise that what we know is still only a tiny portion of what is out there and what we would like to know. Among the 55,000 listed companies, our study only covers 0.8% of them. There are also many areas of investing this research does not examine. We did not explore technical analysis, price charts and other shorter-term price action-led trading strategies. Although these methods can also achieve outperformance, we do not think we can add any relevant literature or analysis in these fields.

Our research covered outperformance which is only half the story of what investors need to study in fundamental investing. 5,243 companies were 50% below their share price of ten years, and 2,949 companies were 50% below their share price of 20 years. A lot more companies underperform than outperform, and it would be beneficial for you as an investor to extend your research into learning more about the other side of the performance spectrum.

Finally, while we believe history is an investor's best friend, it could also be your worst enemy. What matters in investing is the future, not the past and investing solely with past data with no analysis or opinion of the future will lead to poor results. Our research, of course, focuses on what has already happened, and our purpose is not to find stock picks from past returns but rather to gain a better perspective of what drives returns and apply it to investments of the future. We encourage readers to keep this mindset while reading this.

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Introduction

There are many studies, research papers and reports on the stock market, investment returns and outperformers over the past years and attempting to add new theories on investing may be pointless. This research mainly focuses on lessons that the past ten years can teach us about company analysis, valuations and how to select winning investments in the global equity markets. We particularly like two recent studies covering these topics. Christopher Mayer's book titled "100 Baggers" reviews American companies that returned 10,000% over the past decades, and the research team at Alta Fox Capital LLC similarly produced a report titled "The Makings of a Multibagger" and examined companies that returned more than 500% between 2015 and 2020 (5 years) in a presentation format.

So why do we need further research into these companies that deliver great returns over time?

First, we realised most investment research was skewed towards companies listed in the western world; North America and Western Europe. Most past research into outperformers had excluded developing economies and even continents like Asia despite their performance and creation of leading companies. Asia contributed to 59% of the 446 companies in this research. India alone produced 91 companies, much larger than the USA's 60 companies. With a population of just 9 million, Israel had more companies than Canada (13) and France (10). Yet, only 10% of assets managed by global mutual funds are invested in APAC markets, according to Blackrock.

Second, a large proportion of past research mainly focused on the quantitative aspects of stock market analysis. While we agree this is useful, the analysis is incomplete without understanding the qualitative factors that drive company earnings and valuations. In many cases, we saw peers with the same profit margins, return on capital and growth rates go on to achieve very different results over the years. In situations like this, reviewing the qualitative aspects of investing is extremely important to understand the factors most investors miss when searching for outperformance.

The primary purpose behind this research is to become better investors. Our goal is to learn what drives stock market performance over a long period and understand what factors, characteristics and traits companies that significantly outperform have. We also learn more about the diverse range of business models, frameworks and mental models from an investing lens. Our approach to formulating this research was by asking the big questions in business analysis and investing. We applied a case study approach and reviewed how 25+ companies achieved their outperformance, covering all 11 industries, as defined by the Global Industry Classification Standard (GICS). We also noticed that certain countries, regions and industries had more outperformers than others and understanding the reasons behind the geographical and sector trends in outperformers is vital.

We acknowledge that judging if we would have invested based on historical data would be worthless for you, given the hindsight bias. We will not spend any time during this research attempting this. We focus our case study reviews on exploring the diverse range of business models and investment frameworks across globally listed companies. In situations where possible, we prioritise analysing how the investment case transitioned by reading their annual reports, studying their financials and examining their broader industry and macro climate over time. We also reviewed the investor sentiment and the risks many had raised over time.

Range of outperformance

Every investor has their own investment biases. For example, we were biased towards the information and communication technology and consumer-oriented industries because I had always thought that these were the best sectors to search for outperformance, while sectors such as materials and industrials are filled with just cyclical, lower margin and low growth companies. You will see how this bias is false and how strongly the industrial and materials sectors performed between 2002 and 2022 compared to the consumer discretionary, consumer staples and communication services industries.

For the case studies, you will notice that each of the five fundamental investment styles was represented (compounders, cyclicals, turnarounds, stalwarts and special situations). We reviewed compounders like Tesla and ANTA Sports that managed to grow their business year-on-year over very long periods. Some were cyclical opportunities like Ganfeng Lithium and SRF Limited, which had their earnings growth highly dependent on the business cycles of their respective commodities. There were also turnarounds like Trex and Adobe, where management had made some mistakes with operations but found ways to restore growth and market leadership.

Some companies like Airports of Thailand and Sony Group were slow growth stalwarts but produced market-leading returns due to their significant discount to intrinsic value. There were special situations like MSCI, a financial data group spun off from its parent company, Morgan Stanley, in 2007. It was also common for companies to transition across various investment styles over time. Britannia Industries, the Indian biscuits market leader, provided a great example as it moved from being a stalwart to a turnaround and later became a growth compounder.

Beyond investment styles, management attributes were considered too. Some like Anta Sports were founder-led, some were investor turned CEO-led such as Tesla, some like Reply S.p.A in Italy were founding family-led, and some like Hypoport had gone through a management buyout. A significant proportion of the subset group were founder-led companies, and we explain why this was the case.

While the big and growing economies like the USA, China and India produced the most companies within the subset group, we also saw some countries bucking conventional thought. From an equities view, Japan is typically favoured by foreign activists and investors looking for slow growth and low P/E companies. However, Japan was actually the third best country from a growth view as it produced 49 companies within the subset group. Over the ten-year period, more than half of these Japanese companies compounded their earnings by more than 20% CAGR. Smaller populated countries such as Israel and Sweden were also among the best-performing countries despite their smaller addressable domestic market potential. We explored how companies in these markets managed to compound earnings for prolonged periods despite this.

Readers who use the list of outperformers as a tool to build their current investment ideas may be disappointed with the future returns of these investments. Only 23 of the 446 (5.1%) companies screened similarly returned 1,000% in the ten years between the 31st May 2002 to 31st May 2012.

As the saying goes, “past performance is not indicative of future results”. We will like to extend this to “but the insights and wisdom gained from the past can improve future results". This is why we take such an in-depth assessment of what drove the outperformers.

Research Framework

This research aimed to assess companies that saw their share price grow by more than 1,000% over ten years, or 27% CAGR.

Geography classification

We examined all globally listed companies except countries that experienced inflation rates above 30% during the decade, such as; Argentina, Iran, Lebanon, Turkey, Venezuela and Zimbabwe. Excluding these companies removed 36 companies from the subset list, which made the comparison across countries more accurate.

You may notice that an Argentine e-commerce company, MercadoLibre, is mentioned in later segments of this research. MercadoLibre was added due to its US Nasdaq market listing and US dollar financial reporting. MercadoLibre also generates more than half of its revenue from Brazil.

Defining companies geographically was slightly difficult, given how globalised companies are today. Companies like MercadoLibre that are listed, incorporated and generate most of their revenue from different countries meant we had to adjust the data. We predominantly used the country of incorporation and made necessary adjustments—an example are the Chinese companies incorporated in the Cayman Islands due to their international listing requirements.

Industry classification

We used primary industries as defined by the Global Industry Classification Standard (GICS). For diversified companies, the GICS typically uses the portion most revenue and profits come from to assign a company's primary industry. There are 11 industries in total which are directly adopted in the research.

Market capitalisation

We restricted companies to a minimum market size of $550 million as of 31st May 2022. We used $550 million because we wanted companies to have a minimum market capitalisation of $50 million at the initial period of compounding- a 1,000% return in a $50 million company becomes $550 million. There are undoubtedly great opportunities in global micro caps below $50 million, but these companies are too small to have any meaningful impact on the portfolio of institutions.

Time period

The time period was ten years but selecting which dates was slightly tricky. We had initially planned on using 31st December 2011 to 31st December 2021, but we soon realised the market euphoria and over-optimism in sectors such as information technology would distort our conclusions of what it takes to outperform. The recent decline in global equity markets served as a reality check on valuations. We therefore used 31st May 2012 to 31st May 2022 as our time period, which produced 446 companies in total. Had we gone with the former time period, we would have had 654 companies in the subset group.

Multiples

For the valuation multiples, we focused on using Enterprise Value (EV) multiples such as EV/Revenue and EV/EBIT, rather than price-to-sales (P/S) and price-to-earnings (P/E) ratios. The enterprise value rewards companies with more substantial cash positions and lower debt levels, providing a better view of the financial health relative to operations.

Operational metrics

Although we prefer using free cash flow-based ratios as well as operational metrics such as the return on capital, many companies in the subset group experienced years with negative free cash flow due to cash flow timings, hence we mainly used the operating profit margins (EBIT margin) when discussing profitability.

Case studies

We selected various companies across varying sub-industries and geographies for our case studies. We realised how diverse these investment opportunities were, from their business economics, management types and investment styles and thus curated an extensive range of case studies reflecting it.

Key definitions

Subset Group/outperformers: These companies returned 1,000%+ in the ten years (31st May 2012 - 31st May 2022). We may also call these the "ten-baggers."

Time period: 31st May 2012 - 31st May 2022

Overrepresented/underrepresented: We use these terms in two scenarios. For countries, this is how a country performed relative to its peers of similar population, GDP or overall size of its listed market cap. Sweden, for example, was overrepresented in the subset group as it produced 20 companies despite a population of 10 million. Brazil and Mexico were underrepresented in population, GDP and listed market capitalisation size.

Operating profit margin: We define operating profit margin as EBIT (Earnings before interest and tax) over the total revenue.

Enterprise value (EV): The EV measures a company's total value by adding its market capitalisation and cash minus total debt.

Factor Analysis

Profitability

Objectives

1. The market has become obsessed with loss-making companies with high growth potential in recent years. We want to understand how many loss-making companies in 2012 returned more than 1,000%.
2. In cases where companies were already profitable, we want to understand how relevant improvements in profit margins impacted returns.
3. Some companies may have stayed unprofitable throughout the ten years. We want to understand if this was complete speculation or if shareholders had a reason for buying stakes in these companies. Is there any other value beyond future profits?
4. Briefly examine which companies were unprofitable but became profitable and understand how and what clues investors could have used to gauge future profit levels.

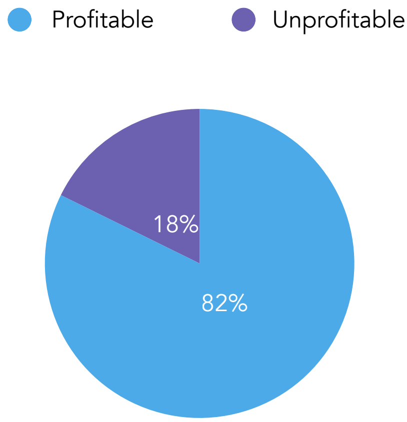
The true long-term value of a business is the sum of its future cash flows, and profitability is thus an essential factor in understanding what drives the future returns of stock prices.

Among the 446 company subset group, 367 companies (82.3%) were profitable in 2012, while 79 companies (17.7%) either had no revenue or were operationally unprofitable.

Unprofitable companies

There are three main types of unprofitable companies;

- Operational but has never been profitable. (17 companies) E.g. Tesla, Enphase Energy and Insulet Corporation
- Operational and was profitable in some years before 2012. (41 companies) E.g. Advanced Micro Devices, Micron Technology, LONGi Green Energy Technology
- Not yet operational but spending on capital expenditure. (21 companies) E.g. Serica Energy, Greatland Gold and Catalyst Pharmaceuticals.



Profitable versus unprofitable companies

A breakdown of unprofitable companies (% of unprofitable companies)

Unprofitable with no previous profitability

The first group of companies representing the typical "venture capital style" companies of fast growth but no profitability, was the smallest group from a profitability perspective. Only 17 of them returned more than 1,000% over the next ten years (2012-2022).

Within five years (2017), six of them had become profitable, with the average company compounding their revenue by 54% CAGR between 2012-2017.

Three of the six companies came from the healthcare industry. One of them, Genmab, the Danish developer of antibody therapeutics for cancer treatments, grew its revenue by 38% CAGR over the decade and ended 2021 with a net income margin of 36% and a debt-free balance sheet.

Of the 17 within this group, only three companies went through the whole decade without achieving profitability in any year. Two were healthcare companies, while Plug Power was the only non-healthcare company. Generally, healthcare companies have more tolerance from markets to be unprofitable. We explore this in more detail in the healthcare section of the report.

Unprofitable with previous profitability

In the “operational with prior years of profitability” segment, the companies were mainly cyclical from a business model perspective. For example, 24% (10 companies) came from a single sub-industry, semiconductors which had experienced an industry-wide downturn as global semiconductor sales declined by -2.7% in 2012. Another example was the salmon industry. For these cyclical companies, one common feature was "a technical barrier to entry". Technical barriers keep potential competitors out of the industry and allow those with supply control to return to profitability quicker than in other sectors.

For example, salmon has a higher barrier to entry than poultry or cattle farming because salmon needs unique aquatic conditions to survive. This explains why 85% of exported salmon comes from the Norwegian shores, and with such market share concentrated in only a few Norwegian companies, the possibility of them returning to profitability is much higher than in the poultry industry.

Beyond cyclical companies with technical barriers to entry, turnaround companies were present in this section. These companies typically went through company-specific issues and either changed management or strategy to return to profitability. An example is Sony Group.

Unprofitable with no revenue

80% (17 of 21 companies) came from the materials, energy and healthcare companies. Companies within the materials and energy industries were at the exploration stage of resources like lithium, oil and gas and gold. They were listed in only three countries; Australia, Canada and the UK, which makes sense given Australia and Canada’s abundance in natural resources and the favourable UK’s AIM exchange market that allows companies without revenue to list. Among these companies, only Serica Energy and Headwater Exploration delivered actual profits during their most recent fiscal year, which shows how difficult it is for public exploration stage companies with no revenue to transition into profitable companies.

Within healthcare, every company was at the clinical-trial or pre-clinical trial stage and was listed across a broad range of developed economies like the

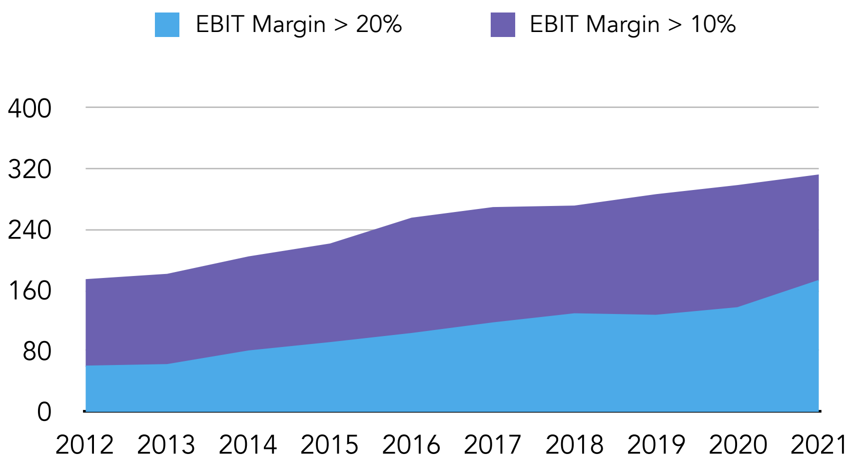
US, Germany and Taiwan. The healthcare companies had a better turnover rate into profitable companies as biotechnology companies like Catalyst Pharmaceuticals and Horizon Therapeutics earned healthy profit margins every year post-2018. For investors with no deep insights into these clinical-stage companies, speculating on them may not be worth it as none featured among the best 100 companies from a share price return lens. PolyNovo Limited, the best performer among the group, returned 2,706% between 2012 and 2022 but still has a share price lower than its 2005 peak and returned 767% (11.4% annualised) since going public in 1998.

Catalyst Pharmaceuticals, another biotechnology company with the highest current profit margin (39%) within biotechnology, only returned 61% (or 3.2% annualised) since going public in 2006, again showing how difficult it is to outperform in these clinical-stage healthcare companies, especially when starting from its IPO price.

We explore lessons from Tesla's success in the consumer discretionary case study section to build a framework for investing in unprofitable companies that can later become profitable.

Profitability

The sheer majority of companies (367 of 446) were operationally profitable in 2012, which contrasts a popular school of thought that global outperformers mainly come from unprofitable fast-growth companies. Margin expansion was significant for these profitable companies during the ten years.



How profitability transitioned over time

10% EBIT margin: In 2012, 48% (175 companies) of profitable companies had an EBIT margin of 10%. By 2021, this increased to 85% (313 companies).

20% EBIT margin: In 2012, 17%% (61 companies) of profitable companies had an EBIT margin of 20%. By 2021, this increased to 47% (174 companies).

The growth in profitability levels emphasises the role margin expansion plays in the journey to outperformance. We explore some companies that exercised margin expansion in the industry case study, like Airports of Thailand, Neste Oyj and MSCI.

Growth

Objectives

1. We know growth plays an essential role in achieving outperformance, but we do not know the scale. Our first goal is to unravel this.
2. How fast do companies need to grow revenue and earnings to deliver outperformance?
3. Is revenue growth necessary in delivering outperformance?
4. What role does margin expansion play in achieving outperformance?

Growth was another factor we identified as essential to generating great returns over the long term. To simplify our breakdown of growth, we look into four main types;

- Fast revenue growth and fast earnings growth
- Slow revenue growth and slow earnings growth
- Earnings growth greater than revenue growth
- Pure earnings growth

We define "slow" as below 20% per annum. We have screened out certain companies that did not report CAGR revenue or growth data, such as;

- Companies with no revenue in 2012, e.g. Serica Energy
- Companies that changed their fiscal year, e.g. Abbott India and Hexatronic.
- Companies with interest from loans as a significant segment of their income statement, e.g. Bajaj Finance

As a result of these adjustments, the subset list falls from 446 to 387 companies.

Fast revenue growth and fast earnings growth

28% of the adjusted subset list (108 companies) grew their revenue by more than 20% CAGR over the ten years, while 19% (74 companies) grew both revenue and EBIT by more than 20% CAGR over the ten years.

We were surprised to see a considerable amount of the 74 companies come from cyclical industries. For example, 19% (14 of the 74 companies) were from the materials industry, which is often seen as a low growth and cyclical sector.

Ganfeng Lithium, a market leader in lithium mining, compounded its revenue and operating profits by 40% and 59%, respectively, and returned 2,749% over the period. In the materials industry case studies, we explored some reasons for their outperformance.

Healthcare performed less than the materials industry, and only information technology performed better than materials with 21% (16 of 74 companies).

Slow revenue growth and slow earnings growth

72% of the adjusted subset list (279 companies) grew their revenue by less than 20% CAGR over the ten years, while 33% (129 companies) grew their revenue and operating profits below 20% CAGR. This was a surprise because we had more slower growers versus fast growers in the subset list, which is not consensus thought in the topic of outperformance. For these slow growers, it was clear that factors beyond just earnings growth contributed to their outperformance.

Information technology (IT) had the most significant industry representation, with 31% (40 of the 129 companies) coming from the IT industry alone. One reason for this was due to the market sentiment shift, which was in favour of technology companies. While some of this sentiment shift could be due to fundamental reasons, there could also be speculative reasons among some future earnings growth capabilities.

We explore Adobe, HMS Networks, Lasertec and Reply S.p.A in the information technology case studies later in the report.

Earnings growth greater than revenue growth

Among the 367 companies that were profitable in 2012, 74% (272 companies) grew their earnings faster than their revenue, leading to margin expansion over time. 82% of the companies also had an operating profit margin higher in 2021 than in 2012, which again emphasises how vital margin expansion is for outperformers. Companies achieve margin expansion for three main reasons; effects of volume growth on fixed costs, pricing power or a reduction in sales from less profitable products or services. NVIDIA and Netflix achieved this by doing all three hence why they generated such strong returns over the decade.

Overall, the average profitable company compounded their revenue by 15% CAGR and its operating earnings by 20% CAGR.

Earnings growth only

With all things such as valuation and market sentiment remaining constant, companies need to compound their earnings/cash flow by around 27% over a ten year period to deliver a share price return greater than 1,000%—only 31% of companies achieved this, which indicates factors beyond earnings growth influence the performance of outperformers. We explore the role multiples expansion plays in becoming an outperformer.

Multiples

Objectives

1. We want to understand if multiples have a role in the share price return over the long term.
2. In cases where companies were unprofitable, we want to understand if there were any optimal values in the EV/Revenue multiples.
3. In cases where EV/Revenue or EV/EBIT seemed high in 2012, we want to examine the growth rates needed to achieve 1,000% in ten years.

While intrinsic valuation is subjective, the closest metric we could use to understand the valuations of companies in a simplified sense is relative multiples. Here, we focus mainly on the EV/Revenue and EV/EBIT. Although we can not judge what is undervalued by simply plugging a number into EV/ Revenue, using these multiples can provide some perspective on how valuations influence outperformance.

We have screened out banks and other financial industry companies that may hold excess liabilities for operational purposes. We also screened out companies that had no revenue in 2012. These adjustments reduce the multiples subset list from 446 companies to 403 companies.

EV/Revenue

In the table below, we split the subset group into seven groups in ascending order of their EV/ LTM Revenue as of 31st May 2012. We then examine how each group performed from an operating profit margin, revenue and earnings growth viewpoint.

50.7% of the subset group (204 companies) had an EV/Revenue below 1x before compounding by more than 1,000%, which gives an idea of how cheap companies need to be to achieve outperformance. There were two other interesting trends. First, as multiples increased, each group's median operating profit margin also steadily increased.

Companies with an EV/Revenue of less than 1x had a median EBIT margin of 4.4% compared to the 17% EBIT margin seen in companies with an EV/ Revenue of 3-4x. The second significant trend is that as the EV/Revenue

Multiple EV/ Revenue	Number of subset companies	% of subset	FY 2012 Median EBIT margin	FY 2012 3-Year Revenue growth (CAGR)	Median Earnings growth (T 3 years
0 - 0.5x	99	24.6%	4.4	9.8	-
0.5 - 1x	105	26.1%	7.6	11.3	11.0
1 - 1.5x	62	15.4%	9.5	12.8	-
1.5 - 2x	41	10.2%	14.3	9.0	11.0
2 - 3x	35	8.7%	14.4	15.9	7.7
3 - 4x	16	4.0%	17.0	18.0	17.0
>4x	45	11.2%	21.2	26.5	21.8

multiples increase, the revenue growth needed to achieve outperformance broadly increases. For example, companies within the 0.5-1x EV/Revenue range had grown their revenue by 11.3% CAGR over the three years before 2012, while companies with an EV/Revenue greater than 4x grew their revenue by 26.5% CAGR on average.

There was a high concentration of low-margin turnarounds within the 0-0.5x EV/Revenue, and a classic example was Sony Corporation, the Japanese producer of electronics, gaming consoles and entertainment content. Sony had difficulties across all divisions and fell into losses in 2009 and again in 2012. The best performers from this group were companies like S-Pool, which were extremely cheap, profitable, and small with a long growth runway.

In the last group of companies with an EV/Revenue greater than 4x, the median company actually had an EV/Revenue of 7.1x. Here, we saw many companies with established or expanding moats, such as Texas Pacific, MSCI and M3 Japan. All three had achieved EBIT margins above 35% and grew their revenue above 20% CAGR. We explored the investment cases for each in the industry case study section.

Overall, while these results may not help us select future outperformers, they could certainly support your screening process while searching for future outperformers. The higher the EV/Revenue, the more an investor should demand growth and profitability from companies.

We look into the results from an EV/EBIT perspective next.

EV/EBIT

In the table below, we split the subset group into seven groups in ascending order of their TEV/LTM EBIT as of 31st May 2012. We then assess how each group performed from an operating profit margin, trailing and forward earnings growth view.

Multiple EV/EBIT	Number of subset companies	% of subset	FY 2012 median EBIT margin	FY 2012 trailing median earnings growth (3 years)	FY 2012 forward median earnings growth (3 years)
0 - 5x	42	12.8%	8.5	11.9	15.6
5 - 10x	118	36.1%	10.5	19.7	18.8
10 - 15x	62	19.0%	12.2	25.1	22.9
15 - 20x	35	10.7%	5.5	17.2	27.4
20 - 25x	19	5.8%	10.2	26.0	26.0
25 - 30x	14	4.3%	17.0	27.1	32.2
>30x	37	11.3%	4.1	15.5	34.3

48.9% of profitable companies had an EV/EBIT multiple below 10x, which shows how low one has to pay for long term outperformance**.** That being said, having a low EV/EBIT alone is not enough, and future earnings growth must also be present for long-term outperformance. The average company between 0-5x EV/EBIT grew their earnings by 15.6% CAGR over the next three years after 2012, and as the multiples increased, the future growth achieved over the following three years broadly increased, as the outperformers with greater than 30x EV/EBIT grew twice as fast as those with just 0-5x EV/EBIT.

Amazon was the largest company in the >30x EV/EBIT and provides a good case study into the multiples and growth equation. In 2012, Amazon was at 112x EV/EBIT, which would make value investors scream, but over the following three years, it compounded its earnings at 48.9% CAGR and 39% over the entire decade. Of course, if Amazon was priced at a much lower EV/EBIT in 2012, the future returns would be even more attractive, but if the future earnings growth pays up for the high multiples, it is worth having a look.

Multiples revaluation

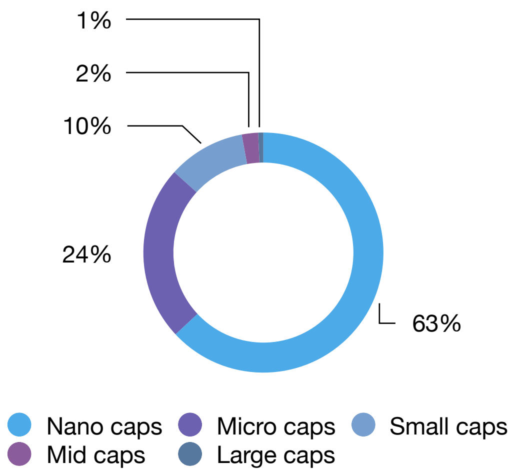
Multiples revaluation played a vital role for the subset companies during their road to outperformance. 91% of the subset list saw their EV/Revenue multiple expand, while 72% of companies profitable in 2012 saw their EV/EBIT multiples expand during the ten years. Many factors cause multiples expansion. There are fundamental reasons, such as companies increasing their earnings over time, their competitive advantages and moats strengthening relative to peers, and management becoming better at their job. Non-fundamental reasons include market sentiment, shares becoming more accessible to large institutions and analyst coverage increasing institutional interest.

It is reasonable to expect multiple revaluations over time as companies become operationally better (provided they are cheaply valued), but an investment thesis should not be too reliant on this, especially during overheated markets, as we saw earlier in 2022. A healthy reality check on multiples is to ensure that the EV/EBIT divided by the 3-year future EBIT growth rate is less than 1. 93% of the profitable companies achieved this in 2012, and we believe this could be a supportive screening and assessment metric for investors.

Size
Objectives

1. Which market capitalisation segments outperform relative to the broader market universe?

The market consensus is that smaller companies have a better chance of outperforming; it is easier for a company to go from \$10 million to \$100 million than from \$100 billion to \$1 trillion due to the law large numbers play in market share and growth.



% of outperformers by market size

As expected, a large part of global outperformers was concentrated within the nano caps segment (63%), which was significantly higher than nano caps representation within the broader global public stock market (46.5%) as of 2012. Nano caps were the only segment overrepresented relative to the overall market.

Large caps, on the other hand, were the most underrepresented segment as only seven companies delivered outperformance.

Size caps	Market cap (2012)	Number of outperformers	% subset group	% universe
Nano caps	< \$50 million	589	63.0%	46.5%
Micro caps	\$50 million - \$300 million	221	23.6%	26.3%
Small caps	\$ 300 million to \$2 billion	97	10.4%	18.9%
Mid caps	\$2 billion to \$ 10 billion	21	2.2%	6.2%
Large caps	> \$10 billion	7	0.7%	2.1%

The seven large caps as of 31st May 2012;

1. Amazon ($95 billion)
2. ASML ($19 billion)
3. Thermo Fisher Scientific ($19 billion)
4. Adobe ($15 billion)
5. Keyence Corporation ($14 billion)
6. Sony Group ($13 billion)
7. Applied Materials ($13 billion)

While the data favours nano caps, it is also likely that the number of companies that have gone bankrupt due to accounting fraud, mismanagement, or competition is also higher within the nano and micro caps segments. As disclaimers often warn, high risks equal high rewards.

Failed outperformers

With the information gathered from a key factors perspective, it may seem like a magic quantitative formula could be created to invest in outperformers, but this is far from the truth. Had we combined all our learnings across profitability, growth, multiples and size and invested in companies that had the metrics and features of most outperformers, i.e. EV/Revenue <1.5x, EV/EBIT <10x, earnings growth of 15% CAGR (assuming we could see the future), a market capitalisation of less than $300 million, we would have still missed 54% (504 of 935 companies) that later returned 1,000% over the following ten years.

The numbers alone do not give us enough insights into the makings of global outperformers. Hence, the rest of the report assesses the qualitative factors that drove companies from a geography and industry lens. First, we discuss how we can further deepen our factor research.

Factor research beyond the scope report

The factor analysis is not perfect, and there are many other ways interested investors can further assess factors driving the outperformance:

Insider ownership: 67% of our subset list had their insider ownership above 5% in 2012 compared to 49% of companies with reported data on insider ownership seen across the broader market. While this does not say much, further qualitative analysis could be carried out to assess if companies with larger insider ownership achieved better investment returns.

Acquisitions: Our growth assessment is slightly flawed given how much mergers and acquisitions drove returns for some subset group companies. Mergers and acquisitions were central for companies like Hexatronic Group, Nexstar Media Group, Pro Medicus and HMS Networks. Each may not have made the subset list without factoring in acquisitions. A comparison with peers or assessment of funding structure (debt/share issue/cash) will provide deeper insights into why these capital allocators successfully drove outperformance compared to peers. Also, mining, television broadcasting and the construction industries had more acquisition activity than other sectors. An assessment of factors driving this could support the case for acquisitions as a path to outperformance.

The risk and return of debt: Some of the best performing companies across the list had fairly high debt levels. S-Pool, Tesla, and Celsius Holdings had more than a 75% debt/capital in 2012 but still returned more than 10,000%. 65% (291 companies) saw their debt/capital increase, while 22.4% saw their debt/capital increase by more than 5% between 2012 and 2022. A part of this is due to IFRS 16 lease accounting reporting that occurred after 2019, but this remains surprising for us. A deeper analysis into factors contributing to this against the broader macro and debt climate seen over the period would improve our research on factors that drive outperformance.

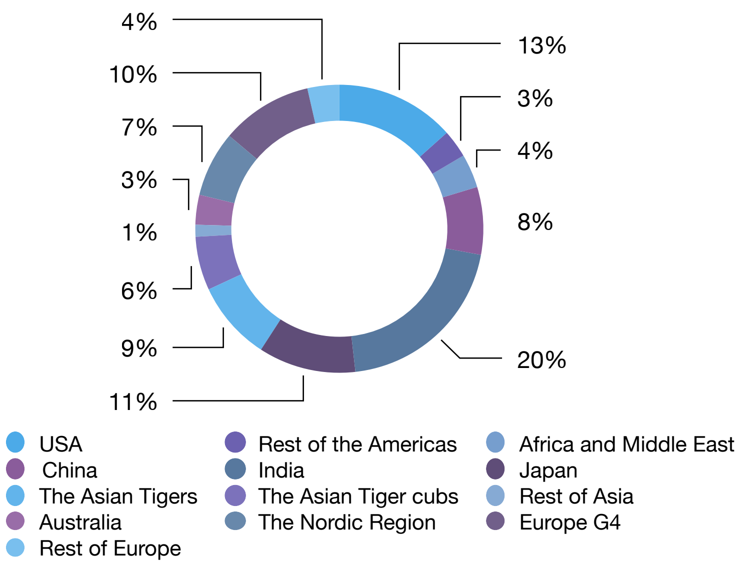
Activist investing on outperformance: Some of the subset companies experienced activist campaigns, for example, Sony Corporation with Third Point LLC, Domino's Pizza with SOC Investment Group or Adobe with ValueAct Capital Management. It is unclear how much of an impact these campaigns had on the stock return over the long term and would require qualitative analysis of the process and outcomes of the activist campaigns.

Outperformance - The geographical view

So far, we explored the big picture overview of what drives outperformance from a factor lens like size, profitability, multiples and growth. While the factors provide broader perspectives on what it takes for companies to outperform, there's more to learn about why they do. This section will examine outperformers from an investment geography lens. We first sort the outperformers by countries and group them into 13 investment groups:

We breakdown the global geographical subset group into the following 13 regions:

- USA (60 companies)
- The rest of the Americas (14 companies)
- Africa and the Middle East (17 companies)
- China (34 companies)
- India (91 companies)
- Japan (49 companies)
- The Asian Tigers (39 companies)
- The Asian Tiger cubs (27 companies)
- The rest of South Asia (5 companies)
- Australia (15 companies)
- The Nordic Region (33 companies)
- Europe G4 (43 companies)
- The rest of Europe (16 companies)



The table below compares the number of outperformers by country relative to their public market listings. Overall, there were approximately 30,000 companies in total, and India led the number of outperformers with 91 companies, followed by the USA, Japan and China.

You may notice the five countries listed in green (India, Japan, Sweden, Germany and Israel). These countries were the top five performing countries based on their representation on the subset list and their global stock market

Country	Subset	% of subset	% of stock market*
India	91	20.4%	4.6%
USA	60	13.5%	14.9%
Japan	49	11.0%	9.4%
China	34	7.6%	18.8%
Sweden	20	4.5%	1.5%
South Korea	18	4.0%	6.6%
United Kingdom	16	3.6%	2.7%
Taiwan	16	3.6%	5.1%
Germany	15	3.4%	1.5%
Australia	14	3.1%	2.8%
Israel	14	3.1%	1.3%
Canada	11	2.5%	3.2%
France	10	2.2%	1.4%
Thailand	9	2.0%	1.9%
Malaysia	8	1.8%	1.5%
Indonesia	7	1.6%	1.5%
Denmark	7	1.6%	0.4%
Hong Kong	4	0.9%	0.7%
Greece	4	0.9%	0.2%
Russia	4	0.9%	0.4%

Country	Subset	% of subset	% of stock market
Finland	3	0.7%	0.5%
Spain	3	0.7%	0.6%
Vietnam	3	0.7%	0.9%
Norway	3	0.7%	0.1%
Ireland	2	0.4%	0.2%
Italy	2	0.4%	0.9%
Netherlands	2	0.4%	0.5%
Pakistan	2	0.4%	0.4%
Sri Lanka	2	0.4%	0.1%
Switzerland	2	0.4%	0.8%
Brazil	2	0.4%	1.0%
Bangladesh	1	0.2%	0.4%
Kuwait	1	0.2%	0.4%
New Zealand	1	0.2%	0.3%
Poland	1	0.2%	0.6%
Saudi Arabia	1	0.2%	0.8%
Singapore	1	0.2%	0.9%
South Africa	1	0.2%	0.6%
Hungary	1	0.2%	0.1%

* We define stock market listing by the number of companies with a market capitalisation above $50 million as of 31st May 2022

listing percentage. Sweden, for example, had 20 companies that delivered a return of more than 1,000%. While Sweden's outperformers group is smaller than China's 34 companies, its stock market has only a twelfth of China's total listings, meaning it relatively outperforms China.

Our approach to understanding outperformance here is more qualitative than quantitative, and we focused on answering the big questions we had while reviewing the subset list. Some of the questions we answer are:

1. Why India has been the single best region to invest in small caps over the past two decades
2. Why does Sweden produce so many outperformers despite having a population of just 10 million?
3. How Israel is transitioning from a high innovation and technology prowess into building businesses with global market share and competitiveness
4. Why do many semiconductor companies come from the Asian Tiger economies?
5. Why does Africa and Latin America produce such a small number of outperformers despite their youthful and growing populations?
6. Why does Japan create fast-growing companies despite its slow-growth economy?
7. Where the Chinese technology opportunities came from despite the crackdown on the sector
8. Which highly innovative industries were dominated by the USA
9. Why do the UK, Canada and Australia have so many resources and energy listings
10. How India and Europe produced some of the most exciting American companies

United States of America

Outperformers: 60 companies

The US has traditionally been the best performing country among global equities. It has achieved an unparalleled level of economic development over the past centuries and has a robust capitalist system that supports entrepreneurs and forward-thinking businesses. American technological advancements and research and development have impacted lives and society globally, and it continues to lead the world in higher education. With a population of 330 million, American companies also have a vast addressable consumer market for premium products and services, coupled with a relatively good rule of law that governs competition.

Due to these and many other factors, we expected the US (60 companies) to be the best performing country in terms of its representation on the subset list, but we were surprised to see it below India's 91 companies. To put things into market listing perspectives, there were 2,293 currently listed American companies with a market capitalisation above $50 million in 2012, versus the 699 companies in India, which was three times smaller than the US. It would be inaccurate to ground our conclusions on this data alone, so we also explored data from the previous decade.

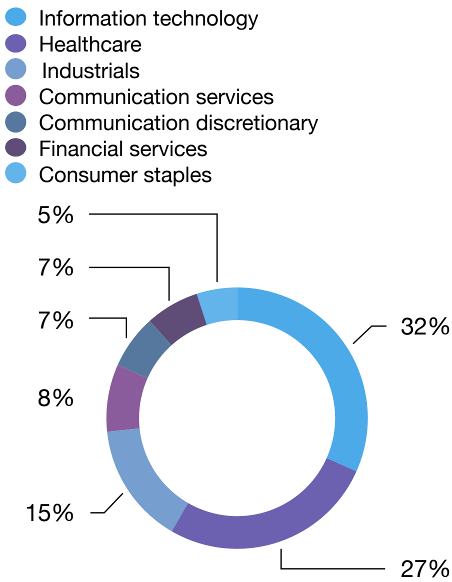
Looking at the outperformers between 2002 and 2012, India similarly outperformed the US. Among listed companies that returned more than 1,000% between 2002 and 2012, with a market capitalisation above $550 million, the US produced 38 companies (or 13%), while India had 70 companies (or 23%) within a subset group of 300 companies.

There are reasons behind this relative underperformance of the US. First, not all US-listed companies are American companies. Among the 5,939 US primary and secondary listed companies with a market capitalisation above $550 million, just 2,457 (41%) are American

Facts on the US healthcare and technology industries

- There are more than 585,000 technology companies in the US
- The US has the highest number of patents in force (3.3 million)
- The US has the highest healthcare expenditure per capita ($10,948). No other country comes close
- 14% of US adults are employed in the healthcare industry

incorporated companies. Some large cap NYSE companies that fall into this bucket are Alibaba Group, Accenture plc and MercadoLibre.



A break down of the US companies by sector

Secondly, the US is more open to foreign and international companies when compared to other large economies. Despite being incorporated and listed elsewhere, many outperformers from Europe and southern Asia had the US as the largest market by revenue and profits. Swedish companies like CellaVision, Invisio AB and Biotage generated more than a third of their total revenue from the US. Had we adjusted the geography listing by the biggest revenue market, the US would have had even more outperformers.

Finally, American companies are much larger in market capitalisation than their comparative international counterparts, and while the number of outperformers is smaller compared to India, the value generated is larger. Four of the five largest companies across the subset list were American, while seven of the ten largest were American companies. For funds seeking only large-cap exposure, the US is still the country to be focused in.

The US outperformed in more technically advanced industries like healthcare and information technology; 58% (35 of 60 companies) came from the two sectors. Industries such as utilities, materials and energy had an insignificant role; only one company came from all three sectors combined.

The US semiconductor industry

The single largest sub-industry for US companies was the semiconductor industry, with 11 companies which was a quarter of the 44 companies in the semiconductor subset list. The semiconductor is among the most complex industries, and its role in civilisation continues to advance as technologies like cloud computing, “the internet of things”, and artificial intelligence rely on more chips.

Want to access Wi-Fi or Bluetooth services on your device? Broadcom likely made the RF components needed for access. Suppose you play PC games or gaming consoles, there is a 40% chance your PC chips were designed by either NVIDIA or Advanced Micro Devices and an even higher probability for gaming consoles. Suppose you want to store pictures and videos of family and memorable moments on the cloud or in a hard drive, it is likely Micron's DRAM components were used in the storage devices. These companies are integral to the semiconductor ecosystem and each returned more than 1,000% over the past decade.

Images: The semiconductor industry represented 10% of all outperformers during the decade. Nvidia (left) and AMD (right) led the GPU industry. (company website)

Despite the current optimistic market sentiment, the journey of the semiconductor industry has not been a straight line. Semiconductors have probably experienced an even more cyclical journey than traditional cyclical commodities. Let's take the two Graphical Processing Unit (GPU) leaders, NVIDIA and AMD. Between 2007 and 2012, Nvidia only grew its revenue by 30%, while AMD saw its revenue fall by 7%. Despite the growth in electronic devices via mobile and PC sales between 2000 and 2010, Micron Technology was unprofitable for six of the ten years. Its debt/capital steadily increased from 6.9% to 28.8% during the period. The laws of demand and supply also apply in the technology industry.

A few things occurred that changed the fate of the US semiconductor companies. First, the global economic growth rebounded after the 2008 recession and the demand for technology spurred by the rise of social media and smartphone computing to data centres ubiquity significantly boosted the demand for chips. Second, there was industry consolidation among players. Semiconductor companies fell from 208 in 2012 to 173 in 2017, especially in the fabless segment (companies that contract their chip production). In recent years, the industry also saw a shift from a dependence on electronic device sales to electric vehicles and vehicle connectivity, blockchain and other artificial intelligence applications.

From a micro viewpoint, discipline across the semiconductor companies significantly improved after the disastrous 2000s decade, and due to these various forces, the industry economics significantly improved over time. As we will see in later sections, some of the greatest investment opportunities were born during periods of pessimism and actual fundamental problems.

Companies like Micron, Lam Research and Lattice Semiconductor had fallen to a Price/Book Value of less than 1x. GPU companies like AMD and Nvidia produced a return of 1,575% and 5,909%, respectively, after falling to an EV/Revenue of less than 1x in 2012. As margins improved and the growth outlook became much brighter, the average US semiconductor outperformer has seen its EV/Revenue rise sixfold over the past decade. While the American companies were not the only beneficiaries of the revival of the semiconductor industry, on average their companies were the largest.

Big Tech

As we previously mentioned, the US companies represented seven of the ten largest companies, and all but one (Thermo Fisher Scientific) were technology-enabled companies. The FAANG (Facebook, Amazon, Apple, Netflix, Google) companies drove the US S&P 500 into new highs as they expanded into other geographical markets and entered new businesses, e.g. Amazon venturing into the cloud computing industry in 2006. While we would not recommend betting against these companies, big tech companies were not necessarily the best performers within their respective industries.

We attribute this to the law of large numbers, where it becomes much harder to compound earnings growth the larger a company becomes. An example is Netflix. The media highly publicised the rise of Netflix, but Netflix was not actually the best-performing American media company. Nexstar Media Group, a leader in traditional television broadcasting, outperformed Netflix by 500%

Images: Netflix (left) and Amazon (right) were among the Big Tech winners during the decade. (company website)

over the decade. If we look at the consumer product group (CPG) value chain, Amazon was not the best-performing company. Celsius Holdings, Constellation Brands and Domino's Pizza each performed better than Amazon by growing their position within their respective consumer product markets from a much smaller starting point versus Amazon in consumer retail.

Beyond the FAANG companies, the two best performing big tech companies were Tesla and Nvidia. Both had a market capitalisation of just $3 billion and $7.7 billion in 2012, making it easier to compound growth than their larger technology counterparts.

The US Healthcare industry

Another industry that contributed to the US performance within the subset group was its healthcare industry, more particularly the biotechnology, life sciences and healthcare equipment sub-sectors.

One of the consequences of a more economically developed, older and lower child mortality population is more spending and allocation towards non-communicable illnesses; the US spends more on cancer, diabetes, and cardiovascular diseases than any other country. The US has also played a significant role in healthcare innovations like telehealth and remote patient monitoring, cell and gene therapy, and also smaller but still significant progress in drug manufacturing quality and testing, product profiling and documentation for pharmaceutical and drug companies.

In the US biotechnology segment, while all five companies were post-FDA approval, three were still loss-making with operating loss margins greater than

50%. While this will undoubtedly make traditional value investors weary, Catalyst Pharmaceuticals has shown that the commercialisation of FDA-approved drugs can significantly change the financials of biotechnology companies, and after 12 years as a public company, it began commercialisation of its amifampridine (Firdapse) drug used in the treatment of LEMS, a rare autoimmune disorder characterised by muscle weakness of the limbs. Firdapse was also the first FDA-approved treatment for the condition. Catalyst Pharmaceuticals has already recovered its operating losses from 2003-2017 in just three years. It does pay to be the first FDA-approved solution on the market.

Thermo Fisher Scientific, the largest life sciences company in the world by market capitalisation and revenue, was also among the US healthcare subset group. Thermo Fisher's life sciences solution division grew from 5% of revenue in 2012 to 40% in 2021 and is now its largest segment. Its four primary areas within life sciences are biosciences, genetic next-generation sciences, clinical sequencing and BioProduction. Growth was also boosted inorganically with acquisitions like Life Technologies Corporation for $15 billion in 2014.

A key theme among some of the subset companies for the US healthcare equipment segment was diabetes solutions. As of 2020, 34 million or 10.5% of its population had diabetes, with the highest prevalence among the ageing population. Those with insulin-dependent diabetes have long struggled with traditional insulin therapy procedures.

This is where Insulet's Omnipod system comes in by providing better comfort, convenience and ease with the insulin delivery process. Another issue with diabetes is that patients may need to manage their glucose levels. Here, DexCom's Continuous Glucose Monitoring provides sensors that can measure glucose levels under the skin with readings sent to your smartphones every five minutes. Insulet and DexCom recently signed a commercial agreement integrating the Omnipod 5 with DexCom's CGM. They both delivered 1,059% and 2,669% return, respectively, over the decade.

While sectors like energy and industrials played a smaller role in the US performance, it is worth exploring how these unlikely companies stayed competitive in the face of the competition despite foreign companies having much lower labour and operating costs. In the energy industry case study, we examine how Texas Pacific Land Corporation delivered a 2,636% return thanks to the revival of the Texas oil industry. We also explore Trex, the largest alternative wood producer, which went from near bankruptcy to achieving an industry-leading operating margin.

Images: Dexcom (left) and the Insulet (right) partner to improve living with diabetes. (company website)

The Rest of the Americas (Brazil and Canada)

Canada

Outperformers: 11 companies

Compared to the developed market peers such as Australia, the UK and Germany, Canada underperformed in the subset group. It produced 11 companies (2.5% of the subset list) which was lower than the 3.2% representation of its stock market in global equities. We share a crucial reason for this underperformance of Canadian companies, but first, we explore where the Canadian outperformers came from.

> **Facts on Canadian mining and energy industries**
>
> - Canada is the 4th largest oil producer and exporter
> - Canada is the 4th largest gold miner
> - Canada has the 6th largest reserve of iron ore, larger than the US
> - Canada currently has the third largest per capita natural resources, supporting 1.8 million jobs and contributing 17% of its country's GDP

One area that stands out in the Canadian market is the energy and materials sector concentration in Canadian equities, which makes sense given its abundant natural resources. Canada is the fourth largest oil producer and exporter and the fourth largest gold miner. 31% of the 337 Canadian listed companies with a market capitalisation above $50 million are materials or energy companies, compared to the 12% global average.

The concentration was also reflected among its constituents, as five of the 11 outperformers were materials or energy companies. Three of the five companies were pre-revenue; Lithium Americas has spent $193 million (USD) in operations as it continues to work with its largest partner and shareholder, Ganfeng Lithium, another outperformer, in scaling its Cauchari-Olaroz lithium brine project in Argentina. The project has an average operational cost of $3,579 per tonne and is expected to have an annual production capacity of 40,000 tonnes. Another Canadian lithium company was Frontier Lithium which is based in Ontario via its PAK Lithium project. Frontier claims that the PAK deposits could achieve a lifetime revenue of up to $8.5 billion, 18 times its current market capitalisation.

Other non-renewables-linked materials companies also joined the subset group. Wesdome Gold is a mid-tier Gold producer with its production base in Ontario and its growth asset in Quebec, which is expected to restart production in Q3 2022. Its Ontario mine produced around 100,000 ounces per year. In 2012-2013, Gold prices fell by almost -30% and Wesdome share price declined by -80%, reaching a P/BV low of 0.4x. This was a common trend across all gold miners, and without a view on the price of gold, investing in gold miners is a challenge.

Beyond Energy and Materials

There were no other significant trends beyond the concentration of the Canadian opportunities in the energy and materials industries. The rest of the Canadian subset group was diverse in their business drivers, sectors and growth factors.

There were two growth compounders, goeasy and Constellation Software. goeasy provides non-prime leasing and lending services via its easyhome and easyfinancial businesses, with easyfinancial representing 82% of its total revenue. easyfinancial loans typically range from $500 (CAD) to $75,000 (CAD), with interest rates starting around 9.9%. Its omnichannel model for customer interaction also supports its loan distribution and profitability potential compared to traditional lending companies. Constellation Software, on the other hand, acquires and operates various B2B software companies and is led by Mark Leonard, who realised in the 1990s that the neglected opportunity in boring, niche software companies with small addressable markets could also produce fantastic returns.

Within Canadian industrials, there were two air transport companies with different business models and investment cases. On one hand, we have Air Canada, Canada's largest airline company. Air Canada had struggled for many years between 2006 and 2011 and reflected in its operating profit margins, which only peaked at 3.7%. Unionised workers were demotivated as pensions were underfunded, and broader operating costs were bloated. New management led by Calin Rovinescu initiated a restructuring plan in Air Canada and focused on addressing critical issues like restructuring its pension plans, reducing costs by boosting utilisation of its aeroplanes and expanding more into transatlantic and cross-border flights. These changes brought Air

Canada back to profitability as operating profit margins reached 10% by 2015 and averaged around 8% until the pandemic in 2020.

On the other hand, Cargojet, the time-sensitive air cargo services company founded by its current CEO, Ajay Virmani, has been profitable every year since going public. Cargojet is the only national network that enables next-day and same-day service for 90% of Canada's population. Regulation has been a barrier to entry for foreign-owned airlines, which has supported Cargojet's market share.

Images: Air Canada (left) was among the outperformers which is unusual for the airline industry. Cargojet (right) is a Canadian scheduled cargo airline company. (company website)

The Canada-America dilemma

Canadian companies face the American neighbour dilemma; it is easier for asset-lighter, innovative or consumer-oriented American companies from sectors like information technology, communication services and consumer discretionary to grow and scale into the Canadian market than in any other country. Beyond the geographical proximity, the two countries speak a similar language, over 1 million US citizens live in Canada, and multinational companies often group both markets as one segment.

Canadian companies in these consumer-oriented and technology-enabled sectors need to be very competitive relative to their American peers if they want to become viable businesses due to the lack of geographical, cultural and economic barriers to entry. Due to these reasons, Canadian equities are more likely to produce most of their outperformers from asset-heavy, physical and less consumer-oriented sectors where management can create stronger barriers to entry, like in the materials and energy sectors.

76% (70 of 91 companies) of Canadian stocks that returned 200% in the past five years have come from the energy or materials industry. Only 6.6% (6 of 91 companies) came from the combined information technology, communication services, consumer discretionary and consumer staples industries, despite representing 14% of Canadian listed companies. Among all six companies, only Shopify and Novanta have a market capitalisation greater than $1 billion and both significantly generate more sales from the US than in Canada.

One should not mistake our pessimism and avoid Canadian tech and consumer-enabled sectors. We argue it is safer from an investment view to ensuring portfolio companies have technical, regulatory or geographical barriers to entry against the imminent arrival of American competition.

If we revisit the Canadian outperformers beyond the energy and materials industry, both Cargojet and Air Canada benefit from political barriers to entry against foreign companies, goeasy operates in the lending business and has a physical retail channel which defends its business against US online lending platforms, while Constellation Software makes more revenue from its American software businesses than from Canada.

South America

Brazil

Outperformers: 2 companies

The continent was the second worst performing, after Africa, in terms of representation among the subset group, with just three companies. Brazil alone accounts for most companies with a market capitalisation greater than $550 million at 181 companies of the 290 (308, with Argentina and Venezuela included). Between 2000-2012, Brazil was among the fastest-growing major economies, averaging around a 5% GDP growth rate and had seven outperformers between 2002-2012. However, the 2014 economic and political crisis weakened its economy, and like many emerging markets, it is challenging to separate market and political sentiment from stock picking. Between 2007-2022, the MSCI Brazilian Index has fallen by -14% compared to the 34% rise in the MSCI EM Index.

Despite the challenging decade, two Brazilian and one Argentine company operating mainly in Brazil returned more than 1,000%. Both Magazine Luíza (Magalu) and MercadoLibre benefitted from the rise of the internet and e-commerce in Brazil. Internet penetration grew from 49% in 2012 to 76% in 2021, boosting e-commerce and online sales as a proportion of total retail. Brazil is now the 13th largest market in the world. Magazine Luíza similarly experienced a retail shift as e-commerce grew from 24% of sales in 2016 to 71% in 2021.

Note, Magazine Luíza's shares have fallen by -84% since November 2020, reflecting the consequences of paying 194x EV/EBIT for an asset-heavy retail business growing 29% per year.

Unipar Carbocloro was the best performing South American company and achieved a 5,112% return by making the essential things in liquid commodity chemicals such as chlorine for water, caustic soda for beverages and polyvinyl chloride (PVC) used in the pipes that transport water and sanitary sewer. Its well-timed acquisitions of Unipar from Occidental Group in 2013 and Solvay Indupa helped the group accelerate its growth into becoming the largest manufacturer of chlorine/caustic soda in Latin America.

Mexico

You may notice that a major North American country was not mentioned. Mexico was the largest country by GDP without representation within the subset group. There are a couple of reasons for this. Mexican companies on the BMV are fairly mature and have slower growth; no listed operating company compounded their revenue and operating profits by more than 20% over the last ten years. Second, Mexico has a relatively small public stock exchange; there are only 110 companies with a market capitalisation of $50 million, compared to 291 in Brazil. Its best performing company, with a return of 645% over the ten years, was Gruma, the packaged goods maker of corn flour and taco shells.

Africa and the Middle East

Outperformers: 17 companies

South Africa

Africa was the worst performing continent during the ten years and produced only one listed outperformer. There are 158 listed companies with a market capitalisation above $550 million (521 companies above $50 million), and 70% of them come from its three biggest economies, Nigeria, South Africa and Egypt.

Afrimat, the only African outperformer, is a diversified materials and construction company in products like iron ore, manganese, ready-mixed concrete, and lime. Afrimat's well-timed expansion into the iron ore industry when it looked lacklustre was the main driver of its performance.

Middle East

Despite being a third of Africa's population, the Middle East had 16 outperformers, with all but two companies coming from Israel. The Saudi insurance market was among the fastest-growing insurance markets over the past decade, delivering an 8.8% annual growth, with health insurance maintaining its position as the largest segment. Bupa Arabia for Cooperative Insurance was the only pure-play insurer in the subset group and maintained its market leadership in Saudi Arabia's insurance market.

Kuwait's Humansoft Holding, which manages two locally leading universities, was the only education services company in the subset group. Between 2011 and 2021, Humansoft's operating profit margins increased from 25% to 66%, and revenue and operating profits compounded by 23% and 34% CAGR.

Israel

Outperformers: 14 companies

We expected Israel to outperform its MENA region peers, given its technological advancement over the past decades. However, we did underestimate the scale of its outperformance as it represented 82% of the

Middle East and Africa's subset companies. Among its developed market peers, Israel has one of the smallest public equity markets, only 211 companies were listed with a market capitalisation above $50 million in 2012. Israel also has one of the smallest populations; only Sweden was smaller among the top 15 countries and had the smallest GDP among the top 15 economies.

As you may have guessed, Israel's outperformers mainly came from its information technology. Real estate also played a significant role but let’s first explore Israeli innovation.

Silicon Wadi

> **Facts about the Israeli technology and real estate**
>
> - Israel has the highest R&D as % GDP ratio in the world (5.4%)
> - The GII ranks Israel 6th in knowledge and technology output
> - Israeli home prices appreciated more than any country over the past decade (346%)

Five of the 14 companies were directly listed as information technology companies, while an additional three were innovative technology-enabled companies like Maytronics in robotic swimming equipment, Enlight Renewable in solar power generation and Tadiran Group in air conditioners. These companies are not your regular technology-enabled businesses. Tadiran, for example, has a patent for its air purifier that kills 99% of the coronavirus by converting humidity in a closed space to Hydrogen Peroxide. Tadiran's lithium batteries also played an important role for Pfizer’s vaccine as they powered the cold chain Covid vaccine storage.

Maytronic’s Poseidon division developed the first computer vision system that detects drowning in pools and maintains an 80% market share here. Nova and Camtek are both players in the semiconductor metrology and inspection sub-sector. Camtek focuses more on higher-end inspection and advanced packaging. Camtek is one of the fastest-growing companies in these segments.

Israel has been dubbed the Silicon Valley of the Middle East (Wadi means Valley in Hebrew) and has achieved tremendous technology breakthroughs and innovation since the 1960s. If you might be interested in learning more about Israel's innovation, we recommend reading Start-up Nation by Dan Senor and Chutzpah by Inbal Arieli.

There are over 6,000 startups in Israel, and the country is ranked as the sixth most innovative country by the Global Innovation Index (GII) in knowledge and technology output. The wave of high-tech firms started in the 1960s with the founding of ECI Telecom, Tadiran and Elron Electronics. More commercial innovations followed, but it was typically based on military R&D in areas like medical imaging and printing systems. The next wave came with the rise of software, and although Israel was initially slow here, many successful companies emerged in the late 1980s and 1990s.

The Israeli government has played a critical role in Israel's technological advancements and its ability to build game-changing products. From a human capital view, Israel's education policy has significantly paid off as its top universities have developed deep clusters in innovation and research. Many international technology companies have research and development facilities across Tel Aviv, Haifa and Jerusalem, like Intel, Facebook, and Oracle Corporation. These multinational companies have also stepped up the acquisition of Israeli companies to boost their global operations in various fields, from industrial machinery and internet software to semiconductor applications; this year alone, Nvidia, Microsoft, Alphabet and Intel announced acquisitions of Israeli companies.

Today, there is an emerging class of Israeli high-tech companies guided by entrepreneurs willing to take bigger global risks, and we would not be surprised to see even more outperformers come from Israel.

The information technology revolution in Israel has boosted its overall economic activity in recent years; Israel has the highest research and development expenditure as a percentage of GDP (5.4%), and its high-tech ecosystem contributes 15% of the Israeli GDP and 43% of Israeli exports.

This technological growth and development have also spurred demand in its real estate sector.

Real estate

The remaining six companies beyond the technology-enabled companies were from its real estate sector, contributing almost half of the total real estate companies in the subset group. For the residential real estate segment, the Israeli companies benefitted from the 346% home price rise during the decade, with inflation averaging at just 0.9%.

Prashkovsky was among the beneficiaries. Prashkovsky mainly focuses on apartment complexes and has many projects across cities like Tel Aviv, Haifa and Ramla. Another group with an apartment focus was Y.H. Dimri Construction and Development, which has a slightly broader range of luxury apartments and holiday reserves in resort cities like Netanya. Others were slightly more diversified beyond homes; Israel Canada has an additional portfolio of hotels and spa centres representing almost 20% of annual revenue. They are also taking advantage of the growing technology ecosystem in Israel and now count companies like Microsoft and Wix as clients.


Image: Prashkovsky (left) was among the Israeli residential real estate developers that returned more than 1,000%. Israel Canada (right) counts technology companies like Microsoft and Wix among its clients. (company websites)

Beyond the residential segment, Mega Or Holdings expanded its portfolio of 52 shopping centres and logistics sites over the decade, supporting Israel's growing e-commerce industry. Its clients include multinational companies like Adidas, IKEA, Unilever and SolarEdge.

We do not want to predict how many Israeli outperformers we may see over the future decades, but many indicators point towards optimistic numbers. One of the biggest drivers is the Israeli adoption of the Swedish "local technology-global market model." Israeli companies are more aggressive in entering new markets, which significantly expands the potential addressable market.

We explore the rest of Asia next.

China

Outperformers: 34 companies

China was one of the top performers from a representation on the subset group view, but when compared to peers like India and Japan and its number of listed companies, China overwhelmingly underperformed. China has the most listed companies globally, with 5,000+ listed companies. Our initial rationale was that the underperformance stemmed from the most recent crackdown across various sectors in the past two years, like education, e-commerce, entertainment and apps, real estate and financial technology. If we adjust the period from 2012-2022 to 2009-2019, the number of Chinese outperformers drops from 34 to 23 companies, meaning the crackdowns alone did not explain the underperformance of Chinese equities.

We examined the broader MSCI China Index (table below) to understand its equities market better. Despite the economic miracle China experienced in previous decades, the MSCI China has underperformed both the MSCI EM and MSCI World since its inception in 1992. A $100 investment in 1992, when its GDP was only 3% of what it is today, would grow to only $147 (1.32% annualised) in 30 years. As the saying goes, the stock market does not always reflect the real economy.

	3 years	5 years	10 years	Inception (1992)
MSCI China	-0.44	2.29	5.69	1.32
MSCI EM	0.92	2.55	3.43	6.64
MSCI World	6.71	7.54	9.32	7.89

Table: The table above compares the performance of the MSCI China Index with the MSCI EM and MSCI World. China has underperformed both benchmarks since its inception.

We examined the stock market constituents between 2002-2012 to have a clearer picture of the fundamentals driving the underperformance, and a few things stood out. Its largest companies were state-owned enterprises (SOEs) like PetroChina, Industrial & Commercial Bank of China and China Mobile, and due to their SOE status, it may be tempting to think these were slow-growth businesses. The Chinese SOEs (and mixed-owned) achieved relatively good earnings growth levels. Some of its ten largest companies, like CNOOC, China Shenhua Energy and Ping An Insurance, compounded their earnings by more than 20% per year between 2002 and 2012.

CNOOC was twice as profitable as its US peers like Chevron and Exxon Mobile and compounded its earnings faster, but it traded at earnings multiples lower than both US oil majors. A similar occurrence happened between Chinese banks like Industrial & Commercial Bank of China and China Construction Bank versus US peers like JP Morgan and Wells Fargo.

The valuation discount left us with a question; can SOEs outperform?

SOEs like China Tourism Group and Zhengzhou Pientzehuang Pharmaceutical were among our Chinese subset group, so the SOE status was not the exact problem.

The next question we had, which slightly contradicts most of our research, was, "are fundamentals all to long-term investing?"

Before we answer this question from a Chinese equities perspective, let's first review some of the Chinese outperformers in our subset list. Two themes particularly stand out; the Chinese renewable expansion and the rise of the Chinese consumer.

Chinese renewable energy

38% (13 of 34 companies) of the Chinese companies were in the renewable energy ecosystem. Coal is China's main energy source and represents around 57% of its electricity production. However, coal's proportion has significantly fallen from 72% 12 years ago, and the driving force behind this decline has been the rise of renewables (13.5%) and natural gas (8.2%). Both hydro and wind represent the more extensive

Facts about the Chinese renewables industry

- China has the largest solar power capacity and it's just as big as the EU and the US combined.
- China has the largest installed wind power capacity and it's larger than the US (2nd) and India (3rd) combined.
- China also leads the world in hydroelectric generation. No other country comes close.

mix within renewables, but both tend to be installed and managed by the public sector. Solar, however, is more private sector led and is also the most attractive from a profitability and growth view.

China has a firm grip on the solar energy ecosystem from the polysilicon and monocrystalline raw materials, the solar cells and modules to the solar optimisers and inverters in residential and industrial applications. In polysilicon, a key raw material used in making solar wafers, China has grown its market share from 30% of global supply in 2012 to just under 80% in 2021. Tongwei and Daqo New Energy, two Chinese outperformers, are two of the three largest manufacturers in the world. Daqo New Energy now boasts a capacity of 105,000 metric tons.

In the more efficient monocrystalline silicon market, another Chinese company, LONGi Green, leads global production with a 20% market share in wafer production and is only second to another Chinese outperformer, Jinko Solar. In the more consumer-facing inverter and solar storage market, Sungrow Global, another Chinese outperformer, maintained a market share of 30% of global inverters and shipped 47 GW of PV inverters last year alone.

It is unlikely you could install your solar PV anywhere in the world without one of these companies involved in the value chain process. Solar energy is cyclical like other energy forms despite its high growth market structure. Companies compete not only on their technological prowess but also on cost structure, which puts these Chinese manufacturers at a significant advantage compared to global peers. Solar is also more of a winner-take-all-market, unlike oil and coal, which heavily depend on a country's physical oil/coal reserves, creating a geographical barrier to entry.

The Chinese solar manufacturer's first-mover advantage in scaled production and the various domestic subsidies received put them in an advantageous position to develop plants and lead the solar revolution. Today, China has more solar production facilities than the rest of the top ten countries in solar production combined.

Lithium

The rise of electric vehicles increased the importance lithium plays in civilisation. The issue that investing in lithium faces, like many commodities, is that the commodity price can be very volatile and difficult to predict; lithium carbonate prices fell by -50% between 2017 and 2020 before rising by 450% in the next two years. For Chinese miners like Ganfeng Lithium, EVE Energy and Tianqi Lithium, the pricing volatility is less of an issue when compared to their South American and Australian peers due to their volume power. The Chinese companies raced to secure new mines and EV clients worldwide and diversified their value chain beyond mining. Ganfeng Lithium, the world's third-largest lithium producer, took advantage of the downturn in lithium prices and expanded into batteries. Its battery division now represents 18% of annual revenue.

The lithium producers were not alone in benefiting from value chain control as the battery producers also diversified into segments like mining and vehicle production. BYD, the fourth-largest battery producer, became the world's first fully vertically-integrated EV producer. BYD acquired Qinchuan Automobile in 2003 to gain the Chinese automotive license and began production of the BYD Flyer brand. The BYD F3 became the first production-model plug-in hybrid car. BYD today is much more diversified, integrated and sophisticated than ten years ago. It also manufactures buses, forklifts, trucks, and rail transits and is increasingly challenging Tesla and Toyota's domination in EV production.

Images: BYD's transformation has been among the most impressive stories in the automotive industry. The first BYD Flyer arrived in September 2003 (left). Today, the BYD Seal (right) is expected to rival the Tesla Model 3 (chinacarhistory.com)

The Chinese consumer beyond Big Tech

The Chinese consumer and information technology sectors have been under immense pressure recently, especially among its largest companies operating in e-commerce, social media, gaming and other mobile apps. There has been heightened scrutiny on their growth strategies and influence on society. The news headlines would make you think both industries have become "uninvestable", but 18 companies from both sectors featured among the outperformers.

The consumer outperformers

The domestic Chinese retail industry has historically been an underperformer despite the country's 269,000+ stores. One of the reasons behind this is the role foreign companies have traditionally played here; the apparel segment was 40% controlled by foreign brands in 2012. While companies like Uniqlo, Adidas and Nike still maintain a strong position, the foreign domination has significantly reduced, and we are seeing an emergence of Chinese-founded consumer brands, one of them being ANTA Sports. ANTA Sports is currently the third-largest sports apparel company, and like many Chinese consumer brands, it initially manufactured products as a contractor for foreign companies and then shifted into its lineup of products. Its later acquisition of the Chinese FILA franchise also supported its growth, and we discuss this in more detail in the consumer discretionary case study.

Another Chinese consumer outperformer came from the airport retail segment. The number of civil airports has steadily grown in recent years and is expected to grow 4-5% per year over the next decade from its current 248 airports. China Tourism Group Duty Free (CDFG), a state-owned enterprise that operates over 200 duty-free shops in 90 cities and across nine luxury retail

Images: The Sanya International Duty-Free Complex (left) is the largest in the world Aier Eye (right) now eyes expansion markets beyond Asia. (company website)

categories, was a beneficiary of the growing retail tourism market and compounded its earnings by 21% over the decade. Its Sanya International

Duty-Free Complex is currently the largest in the world and has over 300 retail brands as customers.

The Chinese consumer healthcare segment also benefitted from the growing consumer market. The eyewear market has grown significantly, given the current myopia problem in mainland China and other southeast Asian countries. China's leading ophthalmology hospital group, Aier Eye Hospital, expanded rapidly and now manages over 500 ophthalmic hospitals. Its co-founders, Chen Bang and Li Li have now set their eyes on global expansion. Europe already accounted for 8% of sales in 2021.

Do Chinese fundamentals matter? Conversion analysis

Image: Financial Times

Market participants often debate if fundamentals are relevant when investing in Chinese equities. There are many valid reasons behind this, such as the valuation spread between A-Shares and H-Shares listings, the volatility among Chinese stocks as retail investors make up 85% of daily trading compared to the 20% in US equity markets and the more prominent policy intervention in Chinese equities as we saw during the 2015 stock market crash and the various crackdowns from the Baijiu makers in 2013 to the most recent crackdown on the real estate sector.

Our analysis of the 34 Chinese outperformers over the decade showed that fundamentals matter in Chinese equities to some extent; the average Chinese outperformer compounded their revenue and earnings by 24% and 32% per year, respectively, during the decade, which was faster than other major markets. That said, there are reasons why investors in Chinese markets need to also look beyond just fundamentals here.

Conversion analysis

From our factor analysis, we established that earnings growth is instrumental to outperformance and with other things constant, a company with 27% earnings growth per year should lead to a 1,000% share price return (*theory* as real life is not constant). This also means a 20% annual earnings growth should lead to a 500% share price return (20% CAGR =500% in 10 years).

The table below assesses how many companies achieved the required hurdle rates in four countries. We can see China has the lowest conversion rate; only one in ten (10.6%) Chinese companies that grew earnings by >27% per year over ten years went on to deliver a share price return greater than 1,000% which is significantly lower than other comparable countries. India had triple the conversion rates in both the 20% earnings growth and 27% earnings growth category.

	China	USA	Japan	India
>20% earnings growth and >500% 10 year return	20.8%	26.4%	49.4%	62.5%
>27% earnings growth and >1,000% 10 year return	10.6%	14.0%	34.2%	36.4%

Table: The table above compares how many companies that achieve either 20% earnings growth (row 2) or 27% earnings growth (row 3), and return 500% or 1000% respectively. China was the lowest among the four

It is clear that Chinese companies underperform their peers, which was consistent with what we noticed during the 2002-2012 time period. Some explainable reasons behind the Chinese discount include the following:

- Listed SOEs and mixed-owned companies have a market discount. 40% of the market capitalisation of Chinese companies are either SOEs or mixed-owned.
- Chinese companies rank relatively poorly on transparency, disclosure and corporate reporting. A study by Transparency International showed China ranked significantly lower than India and Japan in transparency and disclosure.
- The Chinese government has a more prominent role to play in industries and the overall market, which leaves market participants with hidden risks, e.g. the listed education sector companies like New Oriental Education & Technology crackdown on profitability.

These should be taken into consideration when selecting companies in the Chinese market, and in situations where a company has a significant potential of running foul of the current government goals or may lack adequate corporate reporting, it is vital you demand more discount to intrinsic valuation to compensate for the additional hidden risks involved.

In the case study section later in this research, we analyse the investment cases for ANTA Sports and Ganfeng Lithium.

Japan

Outperformers: 49 companies

Between the 2002-2012 and 2012-2022 decades, Japan had the most contrasting level of outperformance difference compared to any country. In the 2012-2022 decade, Japan produced 49 outperformers, but between 2002-2012 no company returned more than 1,000%. There are two immediate thoughts here. First, past performance without adequate context can not determine what future performance would be. Second, something drastic occurred in Japanese equities between both decades. The contrasting returns had nothing to do with the number of public listings; Japan represented approximately 9% of the world's listed companies during both decades. It also was not due to the economic slowdown in Japanese equities, as the slowdown in the latter decade was even more severe.

The divergence in Japanese equities was due to the Japanese asset price bubble of the 1990s. Between 1984 and 1989, the Nikkei index rose around 27.5% annually, and the market PE ratio surged from 38x to 70x during that period (some analysts calculate the peak at 53x due to Japanese conglomerate accounting differences). Paying 53x for any stock market index is extreme, and the consequences of doing so are likely to be felt for years as they did in Japan. In the following years to 2002, the Nikkei 225 had double-digit losses in six of the 12 years and the effects extended into the real economy as growth slowed, unemployment rates doubled, and the poverty rate accelerated. For readers interested in learning more about how the asset bubble emerged and later burst, we recommend reading the Bubble Economy by Christopher Wood.

With every period of market euphoria and greed comes fear, and many domestic and international investors were scarred from Japanese equities for years. By 2011 its median PE ratio had fallen to just 11x, with conglomerates like Sony Group priced at just 0.15x EV/Revenue. Valuations alone can not explain Japan's 49 outperformers, so we have to look beyond the valuation drop. A common theme among many Japanese outperformers was that their founders had voiced their frustration during the lost decade and then founded businesses that addressed societal issues. Among the 22 companies founded after 1990, 13 directly addressed problems that stemmed from the effects of the asset bubble in Japan. These companies also turned out to be unlikely growth opportunities.

Japanese growth?

Facts about the Japanese economy

- Japan's GDP is the third largest in the world (nominal)
- Japan has the highest proportion of a population above the 65 years old. (28%)

Japan is not the most obvious country to search for growth ideas as an investor, given its low economic and population growth, ageing economy and woeful fundamental performance of its largest companies in recent years. But compared to its peers, the Japanese companies surprisingly grew their earnings relatively faster. 25% (or 12 of the 49 companies) of the Japanese subset group compounded their operating earnings by more than 27% CAGR (1,000% in 10 years), while 55% (27 of the 49 companies) compounded their earnings by more than 20% annually.

One of the great facts about the Japanese listed market is the diversity of opportunities it presents to investors. Yet, most foreign investors focus solely on activist conglomerate targets or the traditional "Japanese deep value" opportunities.

A few reasons contribute to the enormous opportunity set in Japanese growth companies in its public markets. First, the JASDAQ, a member of the Japan Exchange Group and the Tokyo Stock Exchange Mothers Market (Mothers), both focus on supporting growth and emerging companies in Japan, like the AIM in the UK or the recently launched STAR market in China. Companies with as little as 1,000 tradable shares can list on the mothers market. Among the 4,100+ public companies in Japan, around 60% have a market capitalisation below ¥27 billion ($200 million), while about 75% have a market capitalisation below ¥69 billion ($500 million). China, for instance, has just 3% of its public listings with a market capitalisation below $200 million.

As we mentioned earlier, many Japanese growth companies stood out because their business models were based on the effects of the lost decade on its economy. To explain this, we explore the Japanese consulting and healthcare industries.

Consulting and IT services

A quarter (13 of 49 companies) of the Japanese subset companies were either consultants or professional services companies, which was the highest proportion across all developed markets. One reason for this has been the lack of growth opportunities companies broadly face, given the slow growth within the Japanese economy. It remains an issue for large conglomerates, but it is a blessing for consultants that provide restructuring, acquisition and support services to large businesses. An example is Nihon M&A Center which initially started as an accounting service for other companies but then realised in the late 1990s that there was a much bigger market; mergers and acquisition advisory for companies struggling to achieve organic growth. We discuss Nihon M&A in greater detail in the Industrials section of the case studies.

Another area the slow growth and ageing demography impacts is attracting and retaining younger talent. Human resource companies like Fullcast Holdings, S-Pool, DIP Corporation and OUTSOURCING each provide recruitment, staffing and human resource support for Japanese companies. S-Pool was among the best companies over the decade, with a return of 15,359%. S-Pool was founded by its current chairman, Sohei Urakami, in 1999 to solve issues university graduates faced during the Asian financial crisis. Growth for S-Pool was initially slow, but the staffing problem Japanese companies faced became severe, propelling the opportunity for S-Pool's services across human resources.

Finally, another consequence of a slower growth economy and industry is that the need to simplify costs increases and here, IT services and consultants found many opportunities to grow their services. Japan and India had the most IT support companies in the subset group. One was Information Services International-Dentsu (ISID), a joint venture between Dentsu and General Electric formed in the 1970s. Today, ISID does a wide range of services, from helping companies modernise via its ISID robotic process automation solutions to its other CRM partnerships with larger cloud companies like Snowflake, Microsoft Azure and OutSystems.

Healthcare

Japan's biotechnology, life sciences and pharmaceuticals segments were less impressive than other developed countries like the US, South Korea and Germany; there was only one company from these segments, JCR Pharmaceuticals. However, an area in healthcare the Japanese did well in was healthcare technology. Telehealth has seen one of the fastest global market growths in recent years and is expected to compound around by 29% per year over the six years to 2028. Japanese platforms were early in realising the benefits of bringing healthcare to the internet, and the second largest healthcare technology company in the world, M3, was among the early adopters. Today, M3 supports over 300,000 Japanese doctors via its platforms like Research-Kun and netM3.

You can think of these platforms like a google search and LinkedIn for doctors as they support areas like peer-to-peer research and communication, recruitment solutions, and clinical trial support, among other services. We discussed the M3 story in greater detail in the healthcare case studies.

SMS Co and Benefit One were other Japanese healthcare-oriented companies that built solutions for the industry. For SMS, the opportunity came by focusing on information infrastructure for the ageing Japanese population. Its recruiting agency, Jinzai-Bank, serves the elderly care staff in getting new jobs, while Kaipoke serves as a management support platform that connects elderly care operators with various management support services.

Beyond its healthcare technology and consulting and support industries, another industry and key theme for Japan over the decade was the revival of its semiconductor industry. We explore the investment case behind Lasertec in the industry case study section.

From zero to 49 outperformers

The Japanese number of outperformers going from zero between 2002-2012 to 49 companies between 2012-2022 provides two lessons. First, someone always pays for asset bubbles; the longer and higher they go, the worse it becomes. The Japanese asset bubble during the 1980s affected finding outperformers for the following decades, and as investors, it's essential to remain aware of the broader investment climate.

Finally, if you solely relied on the performance of the Japanese companies between 2002-2012, you would likely have shunned the country and missed the amazing small-cap companies that delivered spectacular returns. Economists were right to focus on the slowing growth and ageing population in Japan, but as we saw, many companies were created to solve these issues and their solutions created value for shareholders. In the face of economic or social problems, find those looking to solve the issues created.

India

Outperformers: 91 companies

The biggest surprise during our research was the outstanding performance of Indian equities over the past decade, producing 91 outperformers (20% of the subset group) and was the best country in the world. To put things into perspective, India performed better than North and South America combined and was just two companies short of performing better than Europe.

If you were like us and thought this was just a fluke due to the timing of India's recent equities strength, we adjusted the time horizon to both 2009-2019 and 2002-2012, and India was again the best-performing country during both periods. From 2002-2012, India's performance was as dominant, representing 21% (70 of 300 companies), compared to the US 13% (38 companies). India also has a smaller public market than China, the US, Japan and South Korea.

India's outperformance

To understand why India outperforms, we took a step back and considered the broader Indian market. We compared the MSCI India and MSCI India Small Cap indexes with global benchmarks in the table below. The MSCI India and MSCI India Small caps performed much better than the Emerging Markets (EM) index on a three, five and ten-year horizons and since inception. We also noticed that the small-cap index performed better than the MSCI Index over the past decade but underperformed since its inception. Going back to the India subset group, 59% (54 of 91 companies) had a market capitalisation

	3 years	5 years	10 years	Inception (1994)		P/E Fwd	P/BV
MSCI India Small Cap	11.53	4.95	10.94	7.01		18.87	2.78
MSCI India	7.58	7.43	8.23	7.47		18.84	3.25
MSCI EM	0.92	2.55	3.43	5.18		10.92	1.66
MSCI World	6.71	7.54	9.32	7.23		16.30	2.51

Table: The table above compares India's stock market performance relative to the MSCI world and the MSCI emerging market index. India currently trades at a premium to both benchmarks which seems slightly high.

smaller than $100 million in 2012 and all but one of the top ten performing Indian companies had a smaller capitalisation than $100 million.

The Indian equities performance was also stronger in recent years, pushing its multiples to higher levels - the MSCI India index trades at a higher PE ratio (18.9x) compared to the MSCI World (16.3x) and MSCI EM (10.9x), which seems very steep.

While it would be easier to conclude that Indian equities are just overvalued, the fundamentals of the outperformers show this could be for a justifiable reason - 40% of Indian outperformers compounded their earnings by more than 20% over the decade.

Indian companies were surprisingly older than other subset companies. A quarter of its subset companies were founded more than 60 years ago and yet, still found opportunities for growth over the past decade, although this was not the case for many in prior decades. One of the reasons behind this was that many companies started very small as market traders of raw materials before expanding into manufacturing finished products. We will explore more on this later.

While India benefits from a fast-growing, large population, English-speaking and technically gifted workforce, among other macro tailwinds, the outperformance of the 91 companies has much more than just the macroeconomic landscape. As we have learned from China and Japan, economic growth and development alone do not drive outperformers in the stock market. To gain a better perspective on India's performance, we will analyse what happened from three lenses; industrials, the consumer and IT services.

India's consumer upscaling

India had the largest representation across the consumer discretionary and the consumer staples industries, representing 38% (26 of 68 companies) of the consumer space. The largest companies like Britannia Industries, Minda Industries, Trent Limited and Balkrishna Industries, produce essential consumer goods like biscuits, feedstock, footwear and tyres and have been around for many decades. Britannia Industries, India's largest confectionary company, was founded in the 1890s. Some of these companies have not always been high flyers, growing earnings y-o-y as they did in more recent years.

A significant shift occurred across Indian consumer companies; many textile companies like KPR Mill, Garware Technical, Trident and Page Industries saw their operating margins expand during the decade. Both Trident and Garware Technical had an operating profit margin of 8% in 2011, and ten years later, both companies saw their operating profit margins double to 16%. Most of these companies started by trading essential textile commodities from yarns to cotton and then gained deeper global expertise of what their clients and customers wanted: quality.

These consumer companies have slowly shifted into higher quality products, expanded their client base into multinational partners and gained even more cost-saving benefits due to the increased operational scale. Trident, for example, initially started producing just towels but has now shifted into more home furnishing segments. In 2015, it received a patent for its new fabric methods from the European patent office and currently serves the luxury European home market. Its domestic luxury sub-brands like Nectarsoft, Organica and Indulgence retail from ₹5,000 ($63) per bedding set and has contributed to its margin expansion in recent years.

Britannia Industries is another example of the Indian consumer upscale. Britannia was initially the largest biscuit maker but began falling behind its biggest competitor, Parle products, in the biscuits market. The Britannia board soon brought in a new CEO, Varun Berry, in 2013, and he immediately began cutting costs, making operations leaner while boosting plant utilisation rates and other operational efficiencies. Now, Britannia has set its sight on more premium confectionary segments like croissants, creme wafers and its rusk franchise, Toastea.

Indian consumer growth

There were also pure growth companies like Eicher Motors, Relaxo Footwears and Balkrishna Industries (BKT). All three are among the best consumer stocks of all time. BKT, for example, has returned 226,322% (47% CAGR) over the past 20 years, and no other consumer company comes close globally. Each provide great case studies into Indian founding-family-controlled companies that employed different strategies for growth.

Eicher Motors owns both Royal Enfield, the oldest motorcycle brand in the world and a global leader in middleweight motorcycles, and VE Commercial, which is a joint venture between Volvo and Eicher and manufactures branded trucks and buses. BKT on the other hand, produce off-highway tyres for the agriculture and industrial industries, while Eicher Motors manufactures and sells its motorcycles and trucks. Unlike Eicher, BKT focused more on sales beyond India; almost 90% of sales come from export markets, with Europe representing 50% of sales.

Images: Eicher Motors (left) and Balkrishna Industries (right) are among the best performing listed consumer companies over the past 20 years. BKT has returned 226,322% over the past 20 years (company website)

Both companies also focused on more niche markets within their industries. While most tyre companies concentrate on motor vehicles and supplying OEMs, BKT focuses on the replacement market, which is more stable, has a higher margin, and has more repeatable sales than motor sales, as mining vehicles replace their tyres every 9-12 months. While global rivals like Bridgestone and Michelin earn an operating profit margin of 11%, BKT achieves a margin of 24% thanks to its efficient operations and lower labour costs.

Relaxo Footwear, on the other hand, is currently India's second largest footwear manufacturer and has a diversified range of sub-brands from Sparx in trainers to Schoolmate in school shoes. Relaxo's founders, Ramesh Kumar and Mukand Lal Dua, transitioned their father's business in bicycle parts into rubber footwear in the 1970s. In the past 20 years, Relaxo's sales have grown from INR 11,070 lakhs to 265,327 lakhs (17.2% CAGR).

Industrials and materials

What do steel pipes, ceramics, plastics, water softeners, pesticides and paint have to do with each other? These are products of Indian companies that returned more than 1,000% over a decade and compounded their earnings by more than 25%. If one ever thought compounders could only be found in the healthcare or the information technology industry, the Indian industrial and materials sector certainly proves this notion wrong. The Indian industrial and materials sectors produced more outperformers (38 companies) than the US hardware, software, semiconductors and healthcare industry combined (35 companies); there were also more companies in the Indian steel ecosystem (9 companies) than the US semiconductor equipment sub-segment (5 companies).

Although India's manufacturing output (3% of global output) is still much smaller than both China (29% of global output) and the US (17% of global output), the manufacturing sector has a lot more private and smaller-sized companies explaining why many were micro caps. The average company in the Indian industrial and materials subset group had a market capitalisation of just ₹820 crores ($104 million) in 2012.

Across all 38 industrial and materials companies, we broadly had two main company strategies. Those like Bharat Rasayan Limited focused mainly on a closely related but niche product. These also tended to be the smaller group of companies with export markets as a much smaller percentage of total revenue, although this percentage is expected to grow higher due to its recent partnership with Mitsui and Nissan Chemicals in Japan. Bharat Rasayan focuses mainly on technical-grade pesticides and has two large plants, one in Haryana, northern India and another in Gujarat, western India. The other group were companies like SRF limited, which were more diversified, operating in several industrial groups and owning plants outside India. SRF Limited operates in three segments; technical textiles, packaging films, polymer and chemicals. Almost half of its revenue comes from foreign divisions and exports like its textile plant in South Africa and the BOPET film facility in Hungary.

Growth was surprisingly more resilient for these larger and more diversified companies even in years like 2019 and 2020 when the Indian economy slowed. Deepak Nitrite Limited, which was among the best performers with a

Images: Bharat Rasayan (left) and Deepak Nitrate (right) are examples of some India's industrial companies that have capitalised on the Indian economic growth and export opportunities

total return of 12,373% (62% CAGR), compounded its earnings by 42% CAGR over the decade. With a market share of 70% of India's inorganic compounds market, you would have expected them to correlate strongly with the broader industry and market, but yet, Deepak Nitrate grew earnings by 132% and 157% in 2019 and 2020 FY. Its growth was due to its new Deepak Phenolics plant in Gujurat, western India. Phenol and Acetone products are used in skincare and nail polish products and now have over 700 customers, including global industrial and consumer groups like L'Oréal, Coty and Sappi. In the industrial segment, the potential of new plants is something markets often miss and for investors willing to do the leg work and study the potential impact on earnings, opportunities like Deepak Nitrate become more likely to be found.

Many Indian industrial and material groups that turned out to be outperformers were also founding-family-led and had transitioned from years of trading commodities into manufacturing. We explore one of them, SRF Limited, to gain a much deeper perspective of how it achieved success with acquisitions and growth in manufacturing.

IT Services

India has one of the largest IT services markets led by multinational companies like Tata Consultancy, Infosys and Wipro. Thanks to its English-speaking population, convenient time zone and lower labour cost, India became a destination for back office outsourced functions like call centres and customer support services.

By the late 1990s, the industry began shifting into more technical IT services like software support, automation processes and more recently, cloud-based offerings. Indian companies were the joint top performers alongside Japan in the IT services subset group, each producing six of the 25 companies. These companies are very different from the Indian IT services companies a couple of decades ago and are more global than you may think; all six companies had significant operations beyond India. Coforge Limited, the Indian cloud and cybersecurity services company, makes 96% of its revenue from customers outside India. Another example is Mastek which operates across 40 countries with application development and digital commerce as its largest service offering and earns virtually all of its revenue from outside India.

Facts about the Indian IT Services industry

- India has a 55% global market share of the services sourcing industry
- The IT industry has grown from 1% of the Indian GDP in 1997 to 8% today
- India exported $149 billion in IT services, with financial services related services representing 41%

The Indian IT services companies have also acquired international peers to ensure their services are not just diversified but also globally competitive with top software partners like Salesforce, Oracle, SAP and Amazon Web Services offerings. Persistent Systems Limited, one of the best performers with a total return of 2,094% over the ten years, recently acquired the US software company SCI for $53 million to broaden its solutions for American financial services clients. Mastek similarly acquired another US IT services company, MST solutions, in 2022 to boost its offerings in Salesforce consulting for its US and European clients.

In a macro environment where the Rupee falls, the IT services companies also act as a currency hedge, given that their revenue is in foreign currency. Mastek, which has 69% of its current clients in the UK, with 48% being in fixed price contracts, financially benefitted from 2017 to 2021 when the Indian Rupee fell by almost 30% against the British pound.

The Indian IT services opportunity remains huge despite already representing approximately 50% of service exports. The Indian companies are quite competitive relative to global peers and have proved that they can efficiently transition with technological advancements into new fields as they did with mobile and cloud computing.

Allocating to India

Indian equities currently trade at almost double the PE multiples of the EM index, recent performance has been quite strong, and the market may have already caught up with its investment case.

That said, it is crucial you examine Indian companies beyond their face value and consider the potential of margin expansion as many companies transition into new product and service segments, as we saw with the Indian IT services companies like Mastek and the textile companies like Trident and Garware Technicals. The state-owned enterprises play a minor role relative to many Asian countries, which gives a much larger room for domestic growth in the private sector. It is also vital that you assess Indian equities beyond India. Despite a population of 1.4 billion, many companies took advantage of opportunities for growth beyond the Indian enterprise and consumer and have created more diversified revenue streams compared to other emerging market companies that are solely dependent on domestic customers and markets.

Asian Tigers (Hong Kong, Singapore, South Korea and Taiwan)

Outperformers: 39 companies

The term "Asian Tigers" was given to the four East Asian economies that underwent rapid industrialisation between the 1960s and 1990s, averaging annual growth rates of around 7%. Hong Kong was the first to experience industrialisation with the development of its textile industry in the 1950s. After Singapore's independence from Malaysia, the Economic Development Board formulated its strategy to promote its manufacturing sector and Taiwan and South Korea followed with their initiatives. Today, all four economies differ from where they were decades ago, and the economic development experienced has created many investment opportunities for public market investors.

During the 2002-2012 (28 companies) and 2012-2022 (39 companies) decades, the Asian Tigers represented 9% of all global outperformers despite being just 4% of the global GDP. One reason behind their outperformance is the number of publicly listed companies. Taiwan and South Korea have over 4,000 listed companies together, just as many as the EU's largest ten countries combined. Of course, other factors contributed to the Asian Tigers outperformance, and we explore the themes and industries that supported each economy below.

South Korea

Outperformers: 18 companies

It's surprising some international benchmarks continue to refer to South Korea as an emerging economy. Its GDP per capita recently surpassed both Spain and Italy, South Korea ranks above both economies on the Human Development Index (HDI) and performs better on many other metrics. Among the Asian Tigers, South Korea has the largest population and GDP and it was also the best performing Asian Tiger with 18 companies. But like Taiwan and Singapore, South Korea underperformed relative to its number of stock market listings.

The KOSPI Index has also annualised around 7.7% since the early 1980s thanks to the strong fundamentals its large Chaebols had for most of that period. Its performance has, however, been much weaker in recent years; the MSCI Korea Index annualised only 3.6% over the past decade. Its underperformance has been mainly due to the same conglomerates that made its market strong. It has one of the biggest market concentrations; Samsung Electronics and the related Samsung subsidiaries represent around 30% of its market value, making it challenging to separate Samsung's performance from the broader index.

Facts about South Korea's technology sector

- South Korea ranks fifth on the Global Innovation Index
- South Korea has the second largest chip production market with 18% of the global market share
- South Korea has the fourth largest number of patents in biotechnology

The good thing is that the South Korean market has lots of other options with over 1,900+ listed companies.

Semiconductor and Electronics Ecosystem

South Korea, like Taiwan, has seen its semiconductor industry grow rapidly in recent years. South Korea is only behind Taiwan in the global chip production market share and both Samsung Electronics and SK Hynix are among the top five leading Asian Semiconductor companies by revenue.

One may think both Samsung and SK Hynix simply do everything semiconductor related in South Korea, but this is far from the case. There are more than 20,000 semiconductor related companies in South Korea and outsourcing and subcontracting specialised areas within the semiconductor value chain is the norm within the ecosystem. The single best investment strategy for South Korean companies were in companies that directly benefitted from the increased capital expenditure by these large South Korean technology conglomerates.

Miwon Commercial was among the outperformers and counts Samsung as one of its key customers for its krypton fluoride (KrF) photoresist polymer, which is used in the NAND chip production via Dongjin Semichem. Another example was HANMI Semiconductor. HANMI recently won a ₩4.2 billion ($3.2 million) contract to supply Samsung with its micro SAW equipments.

Both companies, like other materials and IT hardware and semiconductor companies from South Korea, were direct beneficiaries of Samsung's more than double increase in capital expenditure seen over the decade and went on to return more than 1,000% over the decade.

Another unique feature of the South Korean semiconductor ecosystem was that they were not solely reliant on supplying their domestic foundries with the necessary inputs and equipments. They also won contracts to supply foundries beyond South Korea too and an example here was Leeno Industrial. Leeno was founded by a couple in the 1970s and initially started by making plastic bags. Leeno shifted into supplying component parts to the Japanese electronics manufacturers that were present in the 1980s and after years of building its technical know-how, they again shifted into the PCB testing process. Leeno now counts international technology companies like Apple and TSMC among its major clients.

Leisure economy

Two big trends have influenced South Korea's leisure economy; recent law changes for working hours and the rise of Hallyu (Korean wave). According to the OECD, South Korea ranked as the fourth highest in terms of average annual hours worked per employee in 2021, but ten years ago, South Korea was number two. The economic development it experienced in previous decades came at a cost, and in more recent years, there has been more focus on improving working conditions. One of the recent changes has been the enforcement of maximum working hours, which will reduce from 68 to 52 hours with additional paid holidays for private companies.

A direct beneficiary of this is the growth of leisure activities like sports, and one winner has been the golf industry, which is currently the third-largest golf market in the world. Golf was popularised during the late 1990s Asian financial crisis by Pak Se-ri when she won the Women's PGA Championship. There are currently seven female Korean golfers among the world's top 20, and the overall market commands around ₩13 trillion ($9.8 billion), with 5.9% of its population counted to have played the sport once. One of the outperformers that benefitted from this rise was Ananti, a developer of luxury leisure facilities like spas and golf resorts. Ananti took advantage of the country club boom in South Korea with its projects like Ananti Chord, which has a 500-acre golf course.


Why are South Korea's women so good at golf?

Reigning Olympic champion Inbee Park is one of the South Korea golfers who have dominated women's golf over the past decade. But what's the secret?

Images: The South Korean market has grown rapidly in recent years and resort operators like Ananti (right) have taken advantage of this boom (Rory Jiwani and Ananti's website)

Another trend that's changed South Korean leisure is "Hallyu" which means "Korean wave". South Korean pop culture, entertainment, music, and TV dramas have rapidly grown domestically and internationally. South Korea is one of the few countries with a dedicated goal of becoming a leading exporter of popular culture and has seen its domestic entertainment industry take on the global stage. In music, JYP Entertainment was the only record label featured on the subset list, thanks to its diversification strategy of forming and supporting top K-pop music groups. In games, AfreecaTV, the live streaming local content leader, compounded its earnings by 43% per year over the ten years, driven by the increased gaming content on its platform, improved monetisation capabilities in both advertising revenue and gift and content spending by streamers.

From trends to opportunities

Economic and social changes and trends sometimes create outperformers, as we saw in South Korea's semiconductor and leisure industries. But spotting the trend is only 10% of the work. What really matters is finding companies that benefit from these trends, and in hindsight, this might look easy, but the reality is that it's much more challenging than you think. An example is South Korea's music industry. While K-pop's boom was well documented, JYP Entertainment was the only listed record label that benefitted from it, and peers like YG Entertainment moved sideways throughout the decade. We explore the difficulties of applying this thematic approach to investing in our JYP Entertainment case study within the communication services industry review.

Singapore

Outperformers: 1 company

Singapore followed Hong Kong after its independence from Malaysia in the 1960s and had a more neoliberal approach than the rest of the Asian Tigers. Its government was also more involved in the formation of companies. This, alongside its small population of 5.7 million people, meant the opportunity set in the private sector was much smaller. There are 293 companies listed in Singapore, just under 20% of Taiwan's public market.

Between 2002 and 2012, Singapore did not have any listed outperformers, but one company outperformed during the recent decade. As we saw in other Asian Tiger economies like South Korea and Taiwan, Singapore similarly invested in its semiconductor sector by supporting local companies and encouraging foreign investments from chip manufacturers. AEM Holdings, the Singaporean system testing and manufacturer of wafer-frame probe stations, has been a direct beneficiary of this, especially in recent years, thanks to its High Density Modular Test (HDMT) sales to customers like Intel.

Taiwan

Outperformers: 16 companies

Taiwan was among the Asian economies that experienced accelerated economic development during the decades after the 1950s. To put things into context, Taiwan's GDP and GDP per capita in the 1950s were smaller than countries like Kenya, Ghana and Morocco. Today, its GDP is more than six times larger than each country. Since the 1980s, the Taiwanese economy has compounded by 7% per year and has experienced tremendous industrialisation and technological advancement despite the lack of natural resources. Taiwan also had an export-led economy focused on electronic components and devices, which was slightly different from the financial sector focus both Singapore and Hong Kong had.

Taiwan had 16 companies within our subset group but surprisingly underperformed relative to its representation across the broader global market. One reason for the underperformance is due to Taiwanese entrepreneurship. Taiwan has over 2,000 listed companies which is almost on par with Germany, Italy, France and Spain's market listing combined. Taiwan has long encouraged entrepreneurship, and the government founded the Taipei Exchange in 1994 to promote access to capital for smaller and emerging Taiwanese businesses. The ease of listing for these smaller companies supported many to go public, especially in the technology sector. In our view, companies that would probably have stayed private in other economies are public in Taiwan and trade at a significant discount to their Asian peers.

The Taiwanese stock market was among the best performing economies globally and was the only major Asian economy we assessed that outperformed the MSCI World Index over the decade. The MSCI Taiwan index annualised 12.6% in USD compared to the World index of 9.4% during the ten years while ending the decade at a lower P/E and P/BV ratio. The reason behind the outperformance is its semiconductor industry.

Facts about Taiwan's technology industry

- Taiwanese foundries account for 53% of the global semiconductor foundry market
- Taiwan ranks sixth in scientific infrastructure (World competitiveness ranking)
- The Hsinchu Science Park generates US$42 billion in annual revenue

Taiwanese technology

Approximately 40% of all Taiwanese publicly listed companies come from the information technology industry, with the semiconductor industry representing most of these companies. From a market value view, the concentration of the semiconductor is even more striking. Taiwan Semiconductor Manufacturing Company TSMC alone represents a third of the whole stock market. Like South Korea, Taiwan invested heavily in developing high technology manufacturing industries and developed local companies that exported value-added products globally. Taiwan alone accounts for 53% of the global foundry industry led by TSMC.

As we learned with South Korea's Samsung, it's worth studying the smaller suppliers to these large semiconductor giants during years of CAPEX increase, and several TSMC suppliers featured among the list of Taiwanese outperformers. eMemory, the world's largest IP provider of logic-based embedded non-volatile memory (Logic NVM), was one of them. Since 2003, eMemory has licensed various NVMs to TSMC and was awarded as TSMC's partner of the year in 2021. Since the start of its partnership with TSMC, eMemory has been debt-free and profitable every year, and since 2013, its operating profit margin has never fallen below 43%.

Images: A few TSMC (left) suppliers benefitted from its increased capital expenditure during the ten years. One of them was eMemory (right), the largest IP provider of Logic NVM. (Hwa Cheng/ Bloomberg)

A lesser known fact is that Taiwan's technology industry has more than just semiconductors. Two of the top six largest companies in the global PC market, Asus and Acer, come from Taiwan. Asus was founded by four former Acer hardware engineers in 1989 and has closed its market share gap to Acer in recent years. Both companies moved sideways during the decade and didn't make great investments, but some of their spinoffs did. One of them, ASMedia Technology, was among the Taiwanese outperformers. ASMedia makes USB host controllers and PCI packet switches for the semiconductor and hardware industry. Beyond its parent company, ASMedia also counts other technology companies like AMD as key partners, and its net cash balance sheet, high-profit margin, and product expansion boosted its share price by 1,176% over the decade.

Beyond technology

The other outperformers were based on individual investment cases rather than thematic situations. In Taiwan's industrial sector, Taiwan's Century Iron and Steel was one of the few steel producers that delivered outperformance. Its initial success came from its earlier contracts with semiconductor companies like TSMC to provide steel for their foundries and manufacturing plants. Today, one of its key business growth areas is contracts with offshore wind turbine manufacturers. Recent projects like the Fuhai Offshore Wind Power project in Changhua, Taiwan, have boosted its growth opportunities and its earnings compounded by 30% over the decade.

A long-standing manufacturing partner of Nike was among the Taiwanese outperformers as well. Between the 1970s and 1980s, Taiwan was the largest exporter of shoes, but today, the industry has lost its competitiveness to emerging economies with cheaper labour like Indonesia and Vietnam. Feng Tay was well aware that Taiwan would lose its cost competitiveness as labour rates increased and it began to expand rapidly into the rest of Asia. India, Vietnam and Indonesia currently represent 72% of its total operations, and Feng Tay continues to be Nike's top manufacturing partner.

Hong Kong

Outperformers: 4 companies

The nature of Hong Kong's economy, like Singapore's, means its listed market has an unusual skewness towards the real estate and financial industries. In Hong Kong, 26% of its listed market is concentrated in both sectors, compared to 5% in South Korea and 7% in Taiwan. If we look at the real economy, Hong Kong has the highest bank assets as a percentage of GDP in the world (266%) and despite the volatility in recent years, Hong Kong still leads Asia as its financial centre. From a real estate view, no other city in the world has more skyscrapers than Hong Kong and it's among the least affordable cities from a housing view.

This skewness was also reflected across the subset group, with three of the four companies being investment managers with private equity and real estate investments. China Investment Fund (China Ding Yi Feng Holdings) and Realord Group were both concentrated in the real estate investment industry but with differing portfolio strategies. China Investment Fund had 84% of its assets invested in Hua Yin International Holdings, another listed property development and investment group with projects concentrated in Guangze, Fujian province, China. On the other hand, Realord Group is a more operational asset and property investment company with projects across the Caribbeans and Shenzhen, China.

The only non-investment company was SITC International Holdings, an integrated shipping logistics company. While most of its share price gains occurred after the pandemic-induced shipping boom, its share price appreciated by almost 400% between 2012-2019, which was driven by its expansion into the Southeast Asian bulk carrier and charter container markets. We explore the Southeast Asian economies (Tiger cubs) next but before we do, let's briefly reflect on the Asian Tiger economies.

The Asian Tiger model

The Asian Tiger's economic miracle serves as a case study for both developing and emerging economies seeking growth and opportunities available to companies from these countries. The focus on the semiconductor and hardware industries, rather than just industrials, was intelligent. These were industries that the Asian Tiger economies had lots of advantages over the US and Europe and could also accelerate their economies from education to research and development expertise.

That said, overexposure to these cyclical technology industries has its costs, and that's where diversification comes in, as South Korea showed with its growing leisure and entertainment industries, expanding consumer goods such as the beauty industry and also advancements in healthcare (Hanmi Science and HLB Life Science were among the South Korean outperformers we didn't discuss).The Southeast Asian countries are now following the Asian Tiger model and we explore the outperformers each country has created in the next section.

Asian Tiger cubs (Indonesia, Malaysia, Thailand and Vietnam)

Outperformers: 27 companies

The five Southeast Asian economies followed a similar export-led model to the Asian Tigers and have experienced remarkable economic growth and overall development in recent years. The Philippines was the only country among the five that was not represented, and its stock market has not been a reflection of the performance of its economy. In fact, none of the five Asian Tiger cubs stock markets performed well during the decade despite the economic growth. The divergence provides a lesson, especially for emerging markets, that an economy's performance can be very different from its stock market performance. We explore this alongside other key lessons the Asian Tiger cubs can teach us about emerging markets investing.

	Outperformers	Number of listings	Size of stock market
Thailand	9	585	$564 billion
Malaysia	8	450	$361 billion
Indonesia	7	462	$607 billion
Vietnam	3	284	$206 billion
Philippines	0	171	$292 billion

Table: The table above compares the Southeast Asian economies by their number of outperformers, listings and market size.

Malaysia

Outperformers: 8 companies

Over the past 20 years, Malaysia has more than tripled its GDP while key economic development and macroeconomic indicators like inflation and employment rate have also been robust and stable. Yet, its stock market has not been a great place for performance. A $100 investment in the MSCI Malaysia Index would have lost -2.2% per year over the past decade.

The contrast in performance between its stock market and economic performance comes from its constituents. Malaysia's key growth sectors have mainly been concentrated in the information technology sector (22.6% of

GDP), while its stock market capitalisation is skewed towards banks. Three of its top four largest companies are banks that have struggled to grow in recent years; banks generally have become a lot less competitive with the rise of FinTech in recent years; only two banks featured in our 446 subset list.

Malaysia has a competitive information technology industry thanks to the overall policy on education and research and development in the sector in the late 1990s and early 2000s. Cities like Penang became powerhouses in electronics manufacturing and have attracted many multinational companies like Dell, Intel and Bosch. The developments in the sector have yet to fully trickle into its stock market; among the 450 publicly listed Malaysian companies, only 7.8% (35 of 450 companies) are from the ICT sector.

Malaysia's semiconductor

Seven of the eight Malaysian outperformers were from its electrical and electronics ecosystem, more particularly the semiconductor industry. Malaysia is currently the third largest exporter of semiconductor devices, and it has been a critical focus for both the public and private sectors. International companies like Infineon Technologies, ON Semiconductor and Osram have set up fabs in cities like Kulim and Penang and have boosted local production of trailing edge chips. Collaborations with other Asian semiconductor hubs like Taiwan and South Korea have increased, and both economies have been key exporting opportunities for Malaysian semiconductor equipment companies.

Frontken Corporation provides a good case study of this. The Malaysian group started in 1996 by providing the oil and gas and manufacturing industries with spray coating and electroplating. It slowly transitioned to the faster-growing semiconductor industry with more advanced precision cleaning and surface treatment. Its revenue by geography also shifted; revenue from Taiwanese foundries like TSMC represents 69% of revenue from 0% in 2011.

ViTrox and Malaysian Pacific Industries, like Frontken, similarly benefitted from the booming semiconductor industry and Malaysia's growth. ViTrox Corporation now counts itself as one of the leading companies in automated machine vision and has seen its revenue from Chinese clients grow from 12% in 2012 to 33% in 2021.

On average, the eight Malaysian technology outperformers compounded their earnings by 36% per year over the decade, compared to the 22% seen in the broader technology industry.

Beyond the technology ecosystem, Press Metal Aluminium Holdings was the only other Malaysian outperformer. It wasn't a great decade for aluminium as prices declined from their 2011 peak for most of the decade. But great operators like Press Metal Aluminium don't necessarily need high prices to grow earnings in the commodity industry. The group was founded by Koon Poh Keong and his brothers in 1986 with a $50,000 pool of money to rent a factory in Selangor, Malaysia. Thanks to its skilled and disciplined capital allocation, Press Metal has grown to become Southeast Asia's largest aluminium player and compounded its earnings by 23% over the decade.

Thailand

Outperformers: 9 companies

Thailand was the best-performing Southeast Asian country, with nine outperformers. From a GDP, population and economic activity view, it's surprising that Thailand outperformed Indonesia. From an economic development lens, we were also surprised that Thailand outperformed Malaysia, given Malaysia's higher HDI and GDP per capita ranking.

Over the past 20 years, the Thailand index has outperformed the Singapore, Malaysia and Indonesian benchmarks from a total return view. One reason for the index's outperformance is its lower concentration of major banks. Some of its largest companies, like Airports of Thailand, CP All Public Company and Thai Beverage Public Company, are more profitable and growth-oriented than their Southeast Asian large-cap peers.

There was a strong presence of technology-enabled sectors among Thai's outperformers. Like Malaysia, the electronics industry plays a vital role in its exports and also among its outperformers. Both Delta Electronics, a manufacturer of electronic components like cooling fans and electromechanical devices, and KCE Electronics, a manufacturer of printed circuit board parts, export their products to foreign companies. Both companies have international sales representing more than 96% of total sales and count key Thai export partners like China and Japan among their top destinations.

Export-led technology growth is a common theme across the Tiger cubs, and companies with niche products that are competitive to gain market share in the global sphere will likely remain an important investment theme for the economies.

Thailand was more diversified than Malaysia beyond electronics and also had tourism-related companies among its outperformers. Thailand has the highest tourist arrivals among any Southeast Asian country, with China representing about a quarter of its total annual tourists. The types of tourists vary, but medical tourism plays a huge role; Thailand is Asia's biggest market in medical tourism. Sikarin Public Company, one of Thailand's 23 listed healthcare facilities, was a beneficiary of this. Sikarin has three hospitals in Bangkok with over 4,000 outpatients daily. Sikarin is well aware of the opportunity medical tourism presents them and has even set up the Sikarin International Medical Center to support tourists. International patients can book and coordinate visits from visa appointments to the airport and travel insurance arrangements. It may be worth exploring the rest of the Thai listed Healthcare facilities companies too. All 23 of them achieved an EBIT margin above 10% in the past year. 16 of 23 achieved an EBIT margin of 20% and grew their 3-year earnings by more than 20% CAGR (the pandemic has positively contributed to profitability).

Images: Sikarin was among the Thai outperformers that strongly benefitted from its economy growing tourism industry. Sikarin has a wide range of services across its three big hospitals. (Chalermwat Wongchompoo)

This leads us to another Thai beneficiary of tourism, the Airports of Thailand Public Company (AOT). Thailand's tourism industry was so strong that you didn't have to look too far to find an outperformer. AOT operates and manages 39 airports in Thailand, and its business benefitted from Thailand's booming tourist economy. We explore the airport business model and how the airport group managed to deliver a return of 1,135% during the decade in our case study section.

Indonesia

Outperformers: 7 companies

Indonesia is the largest economy in Southeast Asia thanks to its vast population (275 million), bigger than Thailand, Malaysia, Vietnam and Singapore combined. Indonesia similarly followed the industrialisation model, but exports played a lesser role in its economic development than its southeast neighbours. Exports only account for 20% of its GDP, compared to Thailand's 60% and Malaysia's 65%. The benefit of its lower export dependency is that it partially shields its economy from global shocks. During the financial crisis, Indonesia was one of the few economies that registered GDP growth in 2008 and 2009, unlike Thailand and Malaysia (this was not the case during the Asian financial crisis).

The technology sector also plays a smaller role, with industries like food and agriculture, raw materials and mining having a more significant representation when compared to Malaysia and Thailand. As a proportion of GDP, agriculture makes up 13.3% of Indonesia's GDP, compared to Malaysia's 9.6%. The nature of Indonesia's economy also skewed its outperformers towards these sectors. Chandra Asri and its parent, Barito Pacific, were the largest companies in the Indonesian subset, and both companies operate in the petrochemical industry. Chandra Asri, Indonesia's largest petrochemical company, is the country's only Naphtha Cracker producing chemicals like olefin and polyolefin, which are used in food packaging, milk bottles and other plastics and rubber products. Barito Pacific and its founder, Prajogo Pangestu, acquired a 45% stake in Chandra Asri in the late 2000s. The market had discounted its real value for years as it was valued at just half its book value in 2012.

One of the most prominent themes across emerging market funds is Indonesia's packaged food industry, where its two largest companies, Indofood Sukses Makmur (the maker of Indomie noodles) and Mayora Indah (the world's largest coffee candy manufacturer), play a key role in emerging market portfolios.

However, their shares didn't have a great decade as they moved sideways for most of the decade. The industry's only outperformer was the lesser known but much faster growing Siantar Top. The company started in Sidoarjo, East Java, in the early 1970s and later expanded its factories into other cities like Medan, Bekasi and Makassar. Its diversified brand portfolio range from snacks and noodles to biscuits and candy.

We briefly discussed Southeast Asia's growing maritime and shipping industry in the Hong Kong section. The region's maritime industry has experienced growth due to its strong economic growth and Singapore's increasing role in global trade; Singapore has the fourth largest deadweight capacity globally. While Indonesia's maritime is still emerging, its industry is becoming more important in the global landscape, and two beneficiaries of this are Temas Shipping and Samudera. Without the pandemic's effect on freight rates, it's unlikely both companies would have made it to the list of outperformers. But still, both provide great case studies into investing in the cyclical shipping industry in Southeast Asia.

Vietnam

Outperformers: 3 companies

The MSCI Vietnam Index was surprisingly the best performing index among the Asian Tiger cubs, but its market performance did not trickle into the number of outperformers as Vietnam only did better than the Philippines. One reason behind this is the representation of the real estate industry in Vietnamese equities. Four of its ten largest companies are from the real estate industry, which tends to be more stable with value appreciation.

All three outperformers were at different stages of the building and construction value chain. It may be tempting to simply attribute their performance to the booming Vietnam real estate market, but their investment cases were company-specific driven. They also had differing investment drivers, ownership culture, strategy, and paths to outperformance. Phat Dat and Hoa Phat were founded by outsider entrepreneurs who saw opportunities in the building and construction ecosystem.

Tran Dinh Long initially started Hoa Phat as an equipment distributor in 1992 before expanding into steel pipes after noticing the steel manufacturing production gap between Taiwan and Vietnam. Like Tran Dinh Long, Nguyen Van Dat was similarly an outsider in the real estate industry and founded Phat Dat after a career trading and distributing automotive and metals. Today, Phat Dat has developed various ambitious luxury apartments in Ho Chi Minh City, Vietnam, and we discuss their growth in our real estate case study later in the report.

Unlike Phat Dat and Hoa Phat, Vicostone was not founder-led and was originally state-owned. Its current chairman, Ho Xuan Nang, was brought in when Vicostone was on the verge of bankruptcy. He steered its recovery and later expansion into more premium and higher grade quartz stone products for the construction industry. Unlike Vietnam's other outperformers, Vicostone isn't too dependent on the local economy as it makes 74% of its total revenue from export markets.

Images: Vicostone is among the global leaders in high grade quartz stones (left) and has benefitted from growth in export markets. Hoa Phat (right) has become one of Vietnam's successful growth stories.

Investing in emerging markets - A Southeast Asia review

Hundreds of emerging market funds are launched yearly to provide investors with diversification and growth, but many of them end up underperforming global benchmarks; the MSCI EM Index returned just 3.4% per year compared to the MSCI World's 9.3% annualised return. The underperformance of emerging markets has left many allocators with the question, is there an investment case for emerging markets?

From an outperformance view, there seems to be some case. 171 of the 446 outperformers (38%) came from emerging and frontier markets, which shows there's some case for allocation. The issue here is the performance of large caps, which is often skewed towards slower growth and constrained companies. If you created an equally weighted portfolio of the largest 25 Southeast Asian companies, you would have returned only 3.2% per year, underperforming a similar developed markets portfolio return of 9.2%.

Bank Central Asia and Bank Rakyat Indonesia were the only companies among the largest 25 that returned more than 15% per year. Across the largest 250 companies in the region, only Airports of Thailand returned more than 1,000%, which shows how difficult it is to outperform, especially when managing a sizable portfolio. Investing in emerging markets is more of a stock pickers game, and simply buying indexes may not be the right strategy.

The learnings from exploring the Southeast Asia outperformers have taught us some critical lessons on emerging market investing, and we can sum this into six crucial rules.

Six crucial rules for emerging market investing

- When building frameworks, avoid grouping all emerging market economies together. The opportunities in Malaysia were very different from those in Indonesia.
- Picking stocks based on macro factors alone is as dangerous as ignoring the macroeconomic conditions in emerging markets.
- Before selecting stocks, benchmark their fundamentals and valuation against international peers. Companies that outperformed, like Airports of Thailand and Siantar Top, had some of the best fundamentals in their industries globally.
- Minimise the role "stories" play in the investment case, and focus on the fundamentals. The Philippines economic growth story didn't lead to outperformers. None of its largest companies delivered an operating profit growth of more than 10% over the ten years.
- Investing in companies with great operators and management is extremely important in emerging markets.
- Foreign exchange rates play a big role in both company fundamentals and the share price return. Watch it closely.

Rest of South Asia (Bangladesh, Pakistan and Sri Lanka)

Outperformers: 5 companies

The rest of South Asia may have performed well relative to its representation on a market listing view, but investing in their broader indexes has not been a great period. Each country's MSCI index is valued much less than the value ten years ago, especially in US dollar terms. $1 invested in the Pakistani index would be worth just $0.2 or $0.3 in the Sri Lankan index. Despite Bangladeshi's outstanding economic growth achievements in recent years, its index similarly underperformed the broader MSCI Frontier Market index, annualising just 2% over the ten years.

On a more positive note, the region's outperformers had some of the best fundamentals in their respective industries. In energy, Mari Petroleum, Pakistan's second-largest gas producer, compounded its earnings by 34% thanks to its production investments in the Mari Gas Field located in Sindh, Pakistan. In Tobacco, Pakistan Tobacco Company (PTC) was the only tobacco company across the subset list. PTC is a subsidiary of British American Tobacco and markets the group's brands like Dunhill, Gold Leaf and Capstan. PTC similarly achieved high rates as it compounded its earnings by 43% and delivered a return of 1,672% over the period.

Like most frontier markets, a significant constraint for investors is size. Bangladesh, for example, has over 350+ listed companies, but only 16 have a market capitalisation above our research requirement of $550 million. In Sri Lanka, among its 260+ listed companies, only two met our size limit, and both turned out to be outperformers. Had we considered companies below our threshold, the number of outperformers from the rest of South Asia would have been 34 companies or 3.7% of the adjusted subset group. For nano-cap investors, the case for the region becomes a lot more promising.

Australia

Outperformers: 14 companies

Australia was among the countries that both outperformed relative to the size of its subset list and overrepresentation relative to the number of listed companies. Only a handful of countries have returned more than the MSCI World since its inception, and Australia is among them. One reason for this is Australia's exposure to the materials industry which has done better than the broader index. Among its 1,500+ listed companies, 53% come from the resources sector. From a GDP view, the mining industry contributes 10% to its GDP and has accounted for 40% of all investments since 2005. It is the largest producer of iron ore and bauxite, the second largest in gold and lead, and the third largest in zinc, manganese, cobalt and uranium.

As you may have already guessed, the materials industry was similarly the most significant contributor to Australia's outperformance, but they were not your large, diversified miners with global operations in cities like Perth and other international mines.

Facts about the Australian mining industry

- Australia's ore reserves and resources ranks first in iron ore and bauxite and second in gold and lead and third in cobalt, manganese, zinc and uranium
- Its mining industry is the largest sector, representing 10% of its GDP

As of 2010, none of the four Australian materials outperformers had made any revenue, and even today, only one of the four, Northern Star Resources, is revenue generating. Northern Star had spent seven years exploring ore deposits in East Kimberley, Western Australia, and it was after the acquisition of Paulsens Gold Mine for $40 million (AUD) in 2010 that Northern Star became profitable. Within its first seven months, Northern Star had already made back its purchase price and earned a 30% operating margin in the 2012 FY.

The other three Australian miners were focused on exploring resources that would benefit from the rise of electric vehicles, e.g. lithium, copper and nickel. You may think these are random speculative investment cases, but each of them had significant breakthroughs with exploration. Chalice Mining, founded in 2005, had a 15-year wait for its exploration breakthrough after discovering nickel, copper and platinum group metals in its Julimar complex in the Avon region, western Australia.

Core Lithium and Liontown Resources are focused on lithium and have completed their feasibility studies on their lithium deposits in northern and western Australia, respectively. Core Lithium expects to produce an average of 173,000 tonnes per annum and will commence production in 2022, while Liontown plans to complete construction in Q4 2023 and begin production in Q2 2024. Liontown also secured a five-year term agreement with Tesla, LG Energy, and Ford as its partners.

It may be tempting to begin speculating on current exploration companies, but among all four companies, none were valued above their IPO price in the pre-discovery phase, and investors waited years for any share price appreciation. Northern Star and Liontown Resources had fallen by more than -90% between their IPO and production confirmation.

Other Australian outperformers

There is more to Australian equities than the resources industry, and some companies did considerably better than the resources outperformers during the period. Another area Australia leads the world in is the gambling industry. Around 80% of Australian adults have gambled in the past years and collectively generate $242 billion (AUD) per year or roughly $11,000 (AUD) per person.

Since the first legal casino in 1972, the domestic industry has steadily grown and has exported its casino innovations globally. Aristocrat Leisure was among these early exporters when it launched its five-reel slot machine in the 1950s and then exported it aggressively into Europe and the US. They have evolved many times, but their most recent business model evolution has created the most significant value; going mobile. Aristocrat was among the few pioneers with its Games Development Kit division and publisher acquisitions such as Product Madness, Plarium Global and Big Fish Games. The mobile gambling market is now expected to compound by 11% over the next eight years, and Aristocrat is among the largest companies.

On the other hand, Jumbo Interactive had a very different story in the gambling industry. Jumbo was originally a software company that sold website designs in the 1990s during the internet bubble. Its acquisition of Jumbomall turned its focus to the lottery industry. Today, Jumbo manages Oz Lotteries, one of Australia's leading lotto apps with over 2 million customers. Its app allows you to purchase tickets for several Australian lotto games, which is currently an $8.9 billion (AUD) market.

Australian Healthcare

The rest of the Australian outperformers related more closely to company-specific themes than broader macro or industry-related themes. For example, three healthcare companies were solving different problems, operating in different markets and operational stages. Pro Medicus, which was among the best performing companies during the decade with a total return of 14,181%, acquired a radiology information software company, Visage Imaging, in 2009. The acquisition propelled Pro Medicus' expertise in the radiology software industry and expanded its client base into the US and Europe. Operating profit margins have remained above 40%, while earnings have compounded by 34% in the past five years.

Imugene and PolyNovo, on the other hand, are less established healthcare companies. Imugene is a clinical-stage immune-oncology company exploring a range of treatments that seek to support the immune system of cancer patients, while PolyNovo makes the first commercially available Novosorb, Biodegradable Temporising Matrix (BTM), a synthetic, biodegradable device used in the management of trauma wounds, surgical wounds and pressure ulcers. While there has been lots of product and operational progress for both companies (Imugene recently started phase 2 trials for two candidates while PolyNovo became profitable for the first time in 2021), the journey has been far from smooth as both are still priced below their share price peak in 2004.

New Zealand's milk industry

Outperformers: 1 company

New Zealand had only one outperformer, The a2 Milk Company (a2 Milk), which returned 1,030% over the ten years. New Zealand is the top dairy exporter in the world, with an export value of $7.8 billion, accounting for 3% of its GDP. Milk has traditionally not been an area to find good returns as it is harder to differentiate milk brands than other beverage categories. But in recent years, the alternative milk segment has been an attractive area for investors as consumers seek alternatives to cow milk. Although still cow-based, a2 Milk developed a patented formula containing just A2 milk rather than A1 and A2 proteins. The case for just A2 protein is attributed to its supposedly healthier and more digestible beta-casein protein. a2 Milk grew aggressively and compounded its earnings by 28% during the decade, but this aggressive growth halted last year. The Chinese daigou (personal shopper) channel had played a crucial role in this growth (40% of total sales) but became an issue as the clampdown on the daigou channel activity impacted a2 Milk's distribution channel in mainland China.

The Nordic Region

Outperformers: 33 companies

The Nordic region was a significant regional outperformer (33 companies) from a population, GDP and public market size. Sweden was among the top five countries in the subset, Denmark produced some of the best performing healthcare companies in biotech and medical devices, Norway bolstered its grip on the salmon industry thanks to both innovation and favourable pricing while Finland had two companies with global market leadership in their respective products. Was this just a timing and valuation occurrence or is there more to why some of the best companies come from the Nordic countries?

If we look at the macro indicators, it is clear that the Nordic regions do many things well. Three of them are among the top ten countries in the Global Innovation Index (GII), four are among the countries with the best 20 educational systems, all five feature among the seven happiest countries and all five are among the top 20 richest nations by GDP per capita.

Outstanding macroeconomic characteristics is not enough to understand why the Nordic region particularly did well given their relatively smaller population and to have a better perspective of their outperformance, let's explore where the winners came from.

Sweden

Outperformers: 20 companies

Sweden was the second biggest surprise for us, after India’s domination and was among the top five best performing countries during the decade. Sweden has a relatively large listed market; despite being a sixth of Germany’s GDP, there are more listed companies in Sweden than in Germany. That said, what matters is the quality of the companies. Two factors contributed to the quality of Swedish companies: innovation and global growth.

Swedish Innovation

Among the 20 companies from Sweden, six were from the information technology and the industrial sector, while five came from the healthcare sector. Sweden has long fostered innovation, entrepreneurship and creativity. Programming is introduced into the national curriculum as early as primary school, and students are often encouraged to engage in projects in an open-classroom layout. At the tertiary education level, innovation and research competency is a big focus for students across all fields.

Facts about Swedish innovation

- Sweden is the second most innovative country in the world according to the Global Innovation Index
- Sweden has the highest R&D expenditure as a % of GDP in Europe
- Sweden has the ninth best education system in the world

This early innovation and creativity focus explains why student-founders created some Swedish technology outperformers. HMS Networks (Hardware Meets Software), a diversified industrial internet of things company, was founded by Staffan Dahlström and Nicolas Hassbjer in 1988 and their idea initially started from a university project involving a technology that measures the thickness of paper. Both co-founders had a passion for electronics and set a goal of challenging how we operate industrial automation equipment and plants. Today, Staffan Dahlström still leads the group and has led HMS from its initial Anybus device success to other divisions such as Ewon, intesis and Ixxat.

Another example is Vitec Software, a vertical software company that operates across the Nordic region was founded in 1985 by its current chairman, Lars Stenlund and former Vice President, Olov Sandberg. Lars and Olov realised property owners could benefit from measuring their energy consumption to boost efficiency and then built a program that could achieve this during their university time at Umeå University. Vitec was listed on the Nordic Growth Market 13 years later and began acquiring several software companies to strengthen its breadth of solutions.

Youth entrepreneurship is not just a recent phenomenon in Sweden. Two other Swedish outperformers, Addtech and Lagercrantz Group, were both spinoffs from engineers Arvid Bergman and Fritz Beving's company, Bergman & Beving, which was founded during their mid-20s in 1906, after noticing the market opportunity to import technologically advanced products into Sweden. Addtech and Lagercrantz Group now manage tens of smaller subsidiaries worldwide, bringing us to the next Swedish outperformers attribute, global growth.

Global growth

Innovation and a great product are not enough to build competitive companies. Companies need to compete at the global level and challenge themselves against international peers from sales to distribution, which are areas the Swedish outperformers have done well in. It is common for Swedish startups to benchmark against global peers even in their early days, as Invisio did 20 years ago when it was still a startup.

The Malmö-based company started in Copenhagen with a focus on developing headsets for communication-based bone conduction technology. While the product was great, the consumer market was not as attractive as it required excess marketing and support costs. It later launched its digital hearing protection and communication system with multiple radios in 2009, and within months, it received orders from the American and European defence sectors. Although lumpy, Invisio's revenue is ten times larger than in 2012, thanks to its expansion of US defence and army orders, which is roughly half of total sales.

Some also credit the government's many initiatives that support companies due to its export-based economic goals. EKN is a Swedish Export Credit Agency that promotes Swedish exports by insuring the risk of non-payment in export transactions. This boosts the accessibility to markets that may seem difficult. The Swedish government also created regional export centres that help companies get in touch with the appropriate promotional and customer contact details within 24 hours.

Images: CellaVision (left) DM1200 used in testing blood cells and Biotage (right) Selekt Automated Flash Purification System used in drug discovery. Both companies were among the Swedish healthcare outperformers. (company website)

Other Swedish outperformers such as Biotage, CellaVision and Sectra also had international sales to countries like the US and Germany, which represented more than half of their total revenue, while those such as Hexatronic Group, which initially focused on the Swedish market, now has the US as a more significant market.

Denmark

Outperformers: 7 companies

Denmark's success was mainly driven by one sector, healthcare. On the Legatum Prosperity Index, Denmark has the best healthcare system in the world, and some of the best healthcare companies and innovations were created in Denmark. Some examples include Novo Nordisk, a crucial player in insulin, Coloplast, the first company to launch a ready-to-use catheter in urology, and the hearing aid trio, Demant, Widex A/S and Sivantos.

Danish healthcare innovations have not stopped at these legacy companies. Four of the seven Danish outperformers have played critical but differing roles in global healthcare innovations. Among the four, two were particularly game-changing in therapeutics, ChemoMetec and Genmab. Across the whole healthcare subset list, the best performer was ChemoMetec, with a total return of 20,053% and a compounded earnings growth of 62% per year over the decade. ChemoMetec is a maker of automated cell counting devices. These devices have been around for a while, but their applications were more limited to research purposes in cancer, clinical experiments and beverage production. Cell counting has now gone beyond just research applications and has become an essential part of immunotherapy; you can think of this as the cell as the drug or medicine. These cells often have to undergo a differentiation process and need to be counted, which has unlocked the most significant opportunity for ChemoMetec. Their NucleoCounters have become the gold standard in immunotherapy due to their precision, ease of monitoring and consistency.

Another area that has experienced tremendous progress in oncology is antibody medicines and platform-based therapeutics. Since its spinoff from Medarex in 1999, Genmab has become a scientific leader in antibody technology and has developed a robust portfolio of proprietary technology platforms like the DuoBody and HexaBody, FCA-approved medicines incorporating Genmab's technology such as Tivdak, used in cervical cancer, Darzalex in multiple myeloma (bone marrow cancer) and 37 other investigational drugs. Today, over 280 clinical trials applied antibodies are created by Genmab's innovations. Genmab's management has now set a goal to become a fully integrated biotech powerhouse with in-house commercialisation capabilities.

The Danish healthcare companies, like the Swedish leaders, are aware they can not limit their research & development to just the Nordic market and are aggressive in tapping the best global talents. The Netherlands ranks among the top ten countries in clinical trials, and Genmab set its research centre right in the heart of its leading city for healthcare, Utrecht, in its scientific park.

Among the non-healthcare companies, only one of three was not an innovation-led investment case, P/F Bakkafrost, which brings us to the Norwegian salmon industry.

Norway

Outperformers: 3 companies

Although the Norwegian equities offer a lot more, the past decade had three companies from just one sector, the salmon industry. Norway is the largest producer of Atlantic Salmon, representing approximately half of global production (2.5 million tons per annum). The decade for salmon producers was a mixture of favourable pricing and volume growth due to the increased awareness of their health benefits. The three Norwegian companies led by SalMar and P/F Bakkafrost in Denmark took advantage of this trend by increasing their capacity and supply through innovative methods to reduce costs. In the consumer staples case study, we explore some lessons on agriculture, barriers to entry, and the benefits of being the lowest-cost producer SalMar teaches us.

Finland

Outperformers: 3 companies

Two of the three Finnish outperformers followed the Nordic model to innovation-led global market domination in their respective fields. A few years ago, Neste Oyj was just another integrated oil and gas company, but today, it is pretty different from your regular European oil majors like Shell, Total and BP. Neste leads the global renewable diesel and jet fuel market through its innovative NEXBTL technology. The Neste MY Renewable Diesel is a cleaner alternative to fossil diesel as both maintain similar chemical compositions. Neste was one of the few companies that did not grow their revenue during the decade but still returned more than 1,000%. Its more profitable renewables division, which now represents 76% of operating profits, expanded the group's operating profit margin from just 1.6% a decade ago to 15% in 2021. Who says outperformers need to grow revenue aggressively?

Revenio Group similarly conquered the global market in ophthalmology devices and software. Revenio Group was a totally different business years ago and was initially called Done Solutions and operated in the logistics software and documentation business. Insights from logistics shifted the group into the export-based Finnish market and began acquiring other companies with export products, one of which was iCare. iCare manufactures medical devices in retinal imaging, tonometers and intraocular pressure applications. Its rebound technology tonometers have a near 100% sub-industry market share, and new acquisitions like CentreVue and Oculo will increase the overall group's ophthalmic devices market share.

The Nordic investment playbook

The strategy for successful Nordic equities investing seems to be finding innovative growth-oriented companies with globally competitive products and services that can be exported. The drawback of this playbook is that one can't separate Nordic companies from the global economy. In years when the global economy and stock market suffer, Nordic equities are likely to perform worse due to the export dependency model. The MSCI Nordic Countries index fell by -53.5% in 2008, worse than the MSCI World's index decline of -40.7%. Ignoring these can lead to severe losses, especially with the US and

German economies, two key trade partners most Nordic outperformers relied on for exports and revenue growth.

On the other hand, this works vice-versa for the outperformers. It's common for markets to project the slowdown of the domestic economy into the stock market, leaving companies that rely more on international markets more undervalued. An example was the Swedish market in late 2011/2012 when its economy slowed, and its central bank cut the repo rate on three occasions. Situations like this create investment opportunities for Swedish outperformers like Mycronic, which has more than 80% of its revenue coming from Asia and the US, thus relying very little on the domestic and European economies.

Europe G4 (France, Germany, Italy and the United Kingdom)

Outperformers: 43 companies

Europe's largest four economies, also known as the G4, performed relatively well, given that three (France, Germany and the UK) outperformed relative to their number of publicly listed companies. From a macroeconomy and stock market performance view, this is a surprise given that Europe's growth declined in recent years, and its stock markets significantly underperformed the broader global benchmark. It's well documented that markets were particularly pessimistic about the future of Europe earlier in 2012 due to the European debt crisis. The pessimism was reflected in valuations as some companies were valued below their net cash position while many growth-oriented and profitable companies were valued as low as 2-5x earnings going into 2012. Suppose the lessons on outperformers in Asia and the US were on growth, we learn the importance of valuations from Europe as each country provides many examples of hidden quality companies at very attractive multiples.

France

Outperformers: 10 companies

France was among the European G4 economies that were overrepresented relative to its number of market listings and was also among the top 15 best performing economies from an outperformance lens. A particularly unique feature French equities had in contrast to the rest of the G4 economies was a strong market performance. The MSCI French index annualised 8.5%, only marginally underperforming the broader MSCI World, which was a significant margin relative to the rest of Europe.

The biggest driver of the French market over the past ten years has been its concentration on its high-quality luxury brands. Among its ten largest companies, four luxury companies (LVMH, Hermès, Christian Dior and Kering) returned more than 15% per year. Unlike the rest of Europe's large caps, these companies delivered double-digit earnings growth with high margins.

The benefits of the globally growing French retail market didn't end with these luxury brands, as two of the ten French outperformers were direct beneficiaries too. ID Logistics and Argan are logistics and warehouse groups that provide services to some of France's biggest luxury brands but with different models and strategies. Argan is the largest specialised French logistics real estate investment company with over 800,000 m² of premium warehouse properties. Argan was well positioned for the increasing demand for premium and client-tailored warehouse spaces in France and capitalised on the market boom by growing its warehouse locations near ports and in Paris. On the other hand, ID Logistics is positioned more as a warehouse operator and provides logistics services to various clients, with luxury retail clients like Chloé and Guerlain among them. ID Logistics was also more acquisitive and geographically more diversified as it operates in over 17 countries like Brazil, Indonesia and the US.

IT services and software. A case study on valuations

The French IT services and software market isn't particularly known for its competitiveness or size. France ranks well below Germany and the UK in its software market and is less than 10% of the US market. Compared to India or Vietnam, the French IT outsourcing and consulting companies often turn out to be less value for money for clients. Yet, four of its ten outperformers came from the IT software and services market. This shows that the domestic industry doesn't necessarily need to be globally leading to produce outperformers.

One significant factor contributing to all four outperformers was their low valuations in 2012. Each company (Aubay, Esker, Teleperformance and Wavestone) were valued at or below 5x EV/EBIT in 2012 despite all except Aubay delivering double-digit operating profit margins and compounded earnings growth in the following years and over the period. If you ever needed some convincing that valuations can play a significant role in outperformance, look no further from Aubay.

Aubay's growth wasn't fantastic during the decade; earnings compounded at just 12% per year. Yet, its share price returned 1,056% over the past ten years and 2,143% since its 2009 lows. The B2B software group, with over 7,300 consultants, saw its market capitalisation decline by -75% after the financial crisis; its EV/EBIT multiples declined from 13x in 2007 to just 2x in 2009. Although earnings fell, the consulting group maintained operating margins of 6% in 2009 (down from 9.4% in 2007). Aubay proactively decreased its debt levels, strengthened its balance sheet, and acquired smaller consultants like Aedian in 2013 and Norma4 and CastInfo in the following years, thus diversifying into new segments and broadening its solutions into higher demand applications like cloud computing support.

This investment theme of searching for lowly rated opportunities in unlikely places wasn't just limited to France but was pretty typical across Europe. If the US and Asia offered growth, Europe offered cheap valuations and Italy provides another example.

Italy

Outperformers: 2 companies

Italy has not been a great destination for investors searching for outperformance compared to the rest of Europe's G4 economies. Alongside Brazil, Italy was among the $1.5 trillion+ GDP countries that significantly underperformed relative to any metric. While the past decade has been one of the most challenging periods for the Italian economy, if we go back to the 2002-2012 decade, a period its GDP rose by 5% per year, no current listed company was an outperformer during that period in the Italian stock market. There are a few reasons behind this underperformance relative to its peers. Like Mexico, Italy has a very small number of listings compared to its GDP. There are just 254 investable companies (market cap >$50 million) smaller than countries like Israel or Sweden.

This macro pessimism is not all doom and gloom for investors seeking outperformers. One benefit is that given its market consensus Italy isn't the best country to search for growth opportunities, many investors neglect here, leaving actual compounders significantly undervalued. Take Reply S.p.A, a network of IT consulting services companies which has been profitable every year since 2000 and achieved double-digit EBIT margins every year but 2003 and an annualised operating profit growth of 16% over the decade. Reply S.p.A was undervalued and neglected by the market because no one searched for IT services compounders in Italy. In 2012, it was valued at just 2.5x EV/EBIT even though it compounded its earnings growth by 12% in the prior five years and achieved an 11% operating profit margin in 2011. In fact, Reply had consistently been below 5x EV/EBIT between 2007 and 2012.

Investors who bothered to look at Italy's compounders may have spotted Reply and returned 2,796% or 40% annualised return over the decade.

The lesson here is that one should not simply neglect companies listed in lesser growth economies like Italy despite its track record because other investors are thinking just like you.

Germany

Outperformers: 15 companies

Europe's largest economy was the third best European country behind Sweden and the UK, with 15 outperformers. Followers of German equities may be surprised by this, given its equity market performance in recent years. Among the European G4 economies, the MSCI Germany index was the only index negative on a three-year (-2.1% annualised) and five-year (-2.6% annualised) basis. From a fundamentals perspective, its largest companies like Siemens, SAP, Allianz and Bayer have each struggled to achieve much earnings growth in their respective business lines.

Finding the German outperformers didn't require investors to look too far from sectors and industries the German economy is competitive in, like industrials & industrial machinery, manufacturing, pharmaceuticals, engineering and construction. In these sectors, the outperformers were not the well-known conglomerates with market leadership but the much smaller, asset-lighter companies supporting these industries with more innovative and technology-driven solutions. Let's examine two applications, construction & real estate and healthcare.

Facts about Germany's IT software and services

- Germany has the highest R&D expenditure as a proportion of GDP in Europe
- Germany's software market is the largest in Europe and accounts for approximately a quarter of the overall European software market by value

Building and construction services

While Germany has one of the lowest homeownership rates in Europe, its commercial real estate is the largest on the continent. In construction production value, Germany outpaced the second largest EU market, France, by €76 billion and the construction industry steadily compounded by 7% between 2016 and 2020. The best beneficiaries of the construction activity were not exactly the real estate developers but the enterprise software companies that provide critical solutions for industry stakeholders.

An example is Nemetschek, a diversified construction software company. Nemetschek goes back to the 1960s when its founder and largest shareholder, Georg Nemetschek, founded the company to develop tools and programs for the construction industry. Nemetschek offers a broad range of services for various construction industry personnel. Architects can design and review projects in both 2D and 3D models on its Allplan software. If you are a site manager and might want to check and manage the construction site logistic plans, Nemetschek's Bluebeam Revu provides collaboration tools for this. Nemetschek has expanded both organically and through acquisitions in more recent years; recent acquisitions like Pixologic and Forger by its Maxon Computer subsidiary have further broadened its solutions beyond construction and into the creative, gaming and animation industries, which now accounts for 10% of the group's revenue.

In the financing side of the construction and real estate industry, another German company, Hypoport, benefitted from the domestic sector's growth and scale. Hypoport is a complex and diversified financial group that plays an integral role in Germany's building product and mortgage financing market via its EUROPACE subsidiary. Many factors ranging from interest rates to life events, can make one turn to financing in the property market, but a key trend has been the steady increase in financing volume activity. EUROPACE has a third of Germany's mortgage financing volume, and Hypoport's other subsidiaries like FIO Systems in property sales solutions, Value AG in property valuation support and Dr. Klein Wowi, which provides an ERP system for the housing market, further enable technology-driven financing in the real estate industry. We explore its business model more in our financials case study.

Health care support

Germany tops the Europe healthcare market in many areas, from its 11.7% healthcare expenditure as a proportion of GDP to its 26% market share of Europe's overall medical devices market. But what was surprising is that none of its medical drugs or vaccine producers were among the outperformers. The four healthcare-related outperformers were companies that utilised technology to improve the "healthcare behind the scenes" areas like lab research.

One of the problems generalists face in the biotech and pharmaceutical industry, especially at the clinical stage level, is the industry complexity and difficulty of spotting winners without deep industry knowledge. You know a theme or sector is set to grow and change how we do things, but the complexity makes it challenging to pick a clear winner.

In these situations, platform-like companies that supply their products and services to every company within the industry provide a safer and, sometimes, more attractive investment opportunity. One German outperformer that proved this from an equipment lens was Sartorius, a supplier of laboratory instruments and consumables to various biopharmaceutical companies. In the downstream biopharmaceutical drug production segment, where clinical-stage companies might undertake lab tests from cell analysis to sample preparation, Sartorius solutions come in handy. Its ultrafiltration devices for concentration and buffer exchange and lab balances in weighing solutions are among the many products and applications they support its customers with. Sartorius has positioned itself as a critical partner in the fast-growing cell and gene therapy market and has also acquired many smaller complementary companies to further diversify and expand its solutions within the market.

Some other "platform-like" companies are slightly more direct with their relationships, and Evotec provides a good example. Their business model is somewhat more complex, but we can sum it up as a drug discovery and research partner to several clinical-stage companies. Evotec has over 2,000 scientists who partner with these companies, from the target validation stage to clinical testing and later FDA approval. In return, Evotec may receive fees or royalties from its 80+ co-owned assets. These fees often take three forms;

- €1-10 million upfront and other research payments (60% of projects)
- Up to €150 million from milestones per project (30% of projects)
- Up to 8% in royalties (10% of projects)

One of its successful projects was its chronic kidney disease (CKD) therapeutics research partnership with Bayer, where it entered a five-year contract worth around €300 million in royalties. For investors, the platform model, like with Evotec, de-risks the binary outcome typically seen among clinical-stage companies by spreading the risk across various projects and with fewer upfront costs. Sometimes, the best investments occur in companies that do the capital allocation into other companies for you.

United Kingdom

Outperformers: 16 companies

The UK was the second best-performing country in Europe behind Sweden and was also among the countries that outperformed relative to its number of listed companies. Compared to the rest of Europe, the UK has a large market per number of listings, but when weighed relative to other English-speaking developed economies like Australia and Canada or Asia's developed economies, the British stock market is smaller than you would think. South Korea's listed market has more than twice as many listed companies, while Canada is slightly bigger with 150 more listed companies.

Like the rest of the G4 countries, the broader British stock market has not been attractive from a total return view due to the lack of growth among its largest companies. Like Germany, the UK's large-cap space consists of slow growth stalwarts that enjoyed record growth in the 1990s but have failed to achieve much in recent years. In the more recent decade, only two companies among its top 50 largest companies managed to grow their operating profits above 10%, while the average company across its top 100 largest grew by only 3.3% per year over the ten years.

As we have already learned about global outperformance, large caps aren't the place to search for outperformance and in the UK, we broadly had two types of outperformers; the Alternative Investment Market (AIM) growth companies and the LSE turnarounds.

The LSE AIM effect

The UK created a smaller stock exchange to encourage smaller and faster-growing companies to list publicly via its AIM, which has less strict listing requirements. AIM listings do not need any trading history or profitability, which explains why it has many listed oil and gas explorers (8.4% of the AIM listings). Two of the 11 AIM outperformers were oil and gas exploration companies; Serica Energy and Pantheon Resources and the former was one of the few exploration stage companies that successfully transitioned into production when its Erskine Field, Central North Sea gas project began production in 2015. Serica made back all its losses from exploration between 2002 and 2020 (-£167 million or -$192 million) in 2021 when profits reached a record high of £247 million ($285 million).

The other British outperformers were quite diversified, and excluding the asset managers, Impax and Liontrust, no two other companies came from the same industry. Both asset managers also accurately portray the LSE main market and AIM contrast. Impax, the founder-led sustainable economy specialist, launched in 1998 and was floated on the AIM in 2001. Liontrust, on the other hand, is a more diversified and legacy asset manager with over 60+ thematic funds from its focused geographic funds to its size and smaller caps funds.

Liontrust had accumulated losses for four years between 2010 and 2013, and its valuations had fallen so low that its net cash had become bigger than its market cap on two occasions. The market valued Impax more richly thanks to its faster growth, more robust balance sheet, consistency and higher profitability. While Impax (1,625%) performed better from a share price view, Liontrust (1,051%) successfully turned its operations around, with its improved performance orientation, from its fees to incentives being the most impactful change. Liontrust also invested in other asset managers and currently has a 7% stake in Impax.

Below cash

Being valued below cash is an unusual situation for listed companies, and Liontrust wasn't the only British outperformer that saw its market capitalisation fall below its net cash position. Another example was the AIM listed, Jet2 plc (formerly called Dart Group). The airline industry is not the most obvious place to search for outperformers given its low margin economics and cyclicality, but when an airline falls below its cash position with an almost debt-free balance sheet position, it's probably worth checking out.

Jet2 was far from a failing business. Its recorded profits every year apart from the pandemic years and was one of the industry's lowest cost operators as operating margins reached a high of 8.2% in 2019. Jet2's competitive advantage came from focusing on its core customers, leisure passengers from Northern England. Jet2 understood what truly mattered to them, like their leisure destinations and packaged experiences they may want in each city and provided them with the lowest cost possible and appropriately bundled holiday packages. Focusing on the leisure market allowed Jet2 to fully tailor its services and airline features, thus reducing costs in areas other airlines couldn't remove. Its ten UK bases only fly to 21 countries, which tend to be top British tourist destinations like Spain, Greece and major cities in continental Europe. The airline has grown to become the UK's third largest scheduled airline, with revenue and operating profits growing seven and nine-fold between 2009-2019. Competitive advantages can sometimes be formed when management is willing to sacrifice a larger market to tailor services better to a smaller customer segment.

Images: Like the rest of Europe, the UK was filled with successful turnarounds and growth-oriented companies with extremely low valuations. Jet2 plc (left) traded below cash while Games Workshop, the miniature maker of Warhammer games, saw its valuations decline despite its turnaround improvements. (company website and retail Gazette)

Rest of Europe

Outperformers: 16 companies

The rest of Europe broadly followed similar trends with Europe's G4; good companies at very attractive prices. This made us further explore why European equities were so cheap earlier in 2012. The low valuations were due to the European debt crisis led by the Greek economy. The Greek outperformers provide some insights into distressed investing but first, let's review the broader climate.

Greece

Outperformers: 4 companies

Greece was an unlikely feature among the subset country group. Despite having the smallest public market among the top 20 countries, Greece produced four outperformers, the sixth best performing European country. The performance was solely due to the Greek crisis, which started in late 2009 when its budget deficit increased and further scepticism occurred with its budget compliance and data credibility. The Athens Stock Exchange (ATSE) had plunged by -45% between 2009 and 2012, after already declining by -45% between 2007 and 2009.

The decline was reflected across the Greek outperformers too. Greece's largest integrated telecommunication company, Hellenic Telecommunications, and Quest Holdings, a diversified telecommunication group, shares fell by -92% and -77%, respectively, between 2007 and 2012. The Terna group companies led by Peristeris Georgios, GEK Terna Real Estate and Terna Energy declined by -96% and -84%, respectively. Valuations rapidly crashed, and some like Quest Holdings and Terna Real Estate had fallen to less than 0.15x P/BV. The path to their outperformance was less about growth and more about survival and cheap valuations, which leads us to a different lesson, distressed equity investing.

Distressed equity investing

Outperformers come in all forms, but one of the rarest tends to be distressed companies where markets might project some insolvency risks into valuations. For investors, the balance sheet and cash flow statements become more valuable as they paint a better picture of a company's insolvency risk. The Greek companies all had their credit profiles downgraded by the rating agencies and news headlines portrayed only bleak messages regardless of how valuable assets were.

The distressed equity investing playbook requires one to prioritise factors that address the insolvency risk. Some questions that may lead you here include:

- Is the company profitable? Do they have enough cash to survive the next two years?

- What is the overall debt profile? Which interest payments are due within the next three years?
- Does its balance sheet have non-core assets it can sell? What valuations might they fetch?
- What is management's intention? Who are its major shareholders?
- Is the margin of safety big enough? (Less than 50% of intrinsic valuation)

Hellenic Telecommunications - A distressed investment case study

The great Greece fire sale

Greece needs to sell off €50bn worth of state assets such as airports and marinas quickly as part of its third bailout deal. But is such a plan realistic?

The neglected, overgrown beach volleyball stadium in Athens. Most of the newly constructed stadiums for the 2004 Games now lie abandoned. Photograph: Milos Bicanski/Getty Images

Greece May Sell All of Hellenic Telecom by End Of June

Maria Petrakis and Natalie Weeks
23 May 2011, 19:02 BST

Greece may sell all of its holding in phone operator Hellenic Telecommunications Organization SA by the end of the second quarter this year.

The government is seeking financial advisers to exercise a put option for 10 percent of Hellenic Telecommunications Organization SA and the sale of a further 6 percent, the Athens-based Finance Ministry said today.

Images: The headlines during the Greek debt crisis were negative and investors were worried if Hellenic Telecommunications would survive. (The Guardian and Bloomberg)

Hellenic Telecommunications (OTE Group) was one of the state-owned assets Greece had partially privatised, and during the financial crisis, the Greek government sold an additional stake to Germany's Deutsche Telekom to free up cash as part of its bailout obligations. The group's two primary assets are Cosmote, Greece's largest telecommunication company covering fixed, broadband and mobile telephony and OTEGlobe, a backbone network operator. Between 2007 and 2012, Cosmote maintained a market share between 40-50%, while rivals like Wind and Vodafone made up the big three.

For the first section in distressed investing, we want to understand the profitability and cash position of the company. OTE Group had maintained a cash position of at least €900 million between 2008 and 2012 year-end, which was 70% of its market capitalisation at the end of 2011. Its EBT (earnings before tax) was also positive throughout the period, with its EBT margin only falling below 10% once in 2011. Well-run integrated telecoms with market leadership tend to be very profitable, but the issue for them is usually growth and debt. With voice and messaging revenue declining, telecoms like OTE Group had to rely on internet services revenue for growth, but even this market was under pricing pressure, and in 2012, CAPEX was set to increase due to Cosmote's 4G enrolment in cities like Athens and Thessaloniki.

Debt

OTE Group's debt level was a course for concern. Debt/capital had increased from 50% in 2006 to 74% in 2009 before declining to 56% by 2013. Investors in the telecommunication industry would have realised this wasn't unique to OTE Group. European peers like BT Group, Telekom Austria, Telefónica, Koninklijke KPN and Bulgarian Telecommunications all had a higher debt/capital than OTE Group. Further research into OTE Group's debt profile would show that 91% of its borrowings were in fixed interest rates. From a sensitivity view, a 1% increase/decrease in interest rates only impacted its profit before tax by €5.2 million, which was immaterial to its €508 million EBT in 2010 and €190 million. The weighted average interest rate of its short-term debt averaged between 2.8% to 7.5% in 2009-2012, which spooked markets when Fitch downgraded the company from 'BB' to 'B-'. Further research would have shown its largest shareholder, Deutsche Telekom, had provided additional revolving credit facilities with covenants capped at the group's net debt/EBITDA at 3x.

Deutsche Telekom had increased its support to OTE Group during the crisis, which provided the group with additional liquidity and financial flexibility. OTE Group's ownership of foreign assets like Telekom Romania provided the Greek group with non-core assets it could potentially sell if needed. Telekom Romania made €179 million in EBITDA in 2010 and selling for 5x EBITDA could have fetched the group an additional €483 million for its 54% stake in Telekom Romania. OTE Group survived the Greek crisis without needing to sell its stake during the period, and investors who had paid just 6x EV/EBIT or 0.4x P/BV for its shares in 2012 gained a return of 1,261% over the following years.

€ m	2008	2009	2010	2011	2012
Cash	**1,564**	**904**	**1,017**	**1,037**	**1,172**
Accounts Receivable	1,220	1,179	1,036	954	848
Other Receivables	23	12	22	52	48
Notes Receivable	16	17	18	19	16
Total Receivables	1,258	1,207	1,077	1,025	913

A snapshot of OTE Group's current assets. Its cash position could cover interest payments over the short term.

€ m	2008	2009	2010	2011	2012
Cash from Ops.	**1,758**	**1,418**	**1,110**	**1,208**	**1,167**
Capital Expenditure	(964)	(891)	(751)	(717)	(508)
Cash Acquisitions	(849)	(246)	(10)	(11)	-
Divestitures	24	165	-	-	380
Invest. in Marketable &	(91)	104	14	(342)	341
Other Investing Activities	76	(100)	4	28	(73)
Cash from Investing	**(1,806)**	**(959)**	**(734)**	**(1,031)**	**150**

A snapshot of OTE Group's cash flow statement. It's crucial to consider divesture opportunities that can provide additional cash.

€ m	2008	2009	2010	2011	2012
Long-Term Debt	**5,410**	**5,386**	**3,211**	**4,139**	**2,635**
Unearned Revenue, Non-Current	18	8	-	44	38
Pension & Other Post-Retire. Benefits	367	427	337	285	289
Def. Tax Liability, Non-Curr.	117	118	66	93	84
Other Non-Current Liabilities	355	421	345	315	264
Total Liabilities	**9,252**	**8,437**	**7,885**	**7,334**	**6,377**

A snapshot of OTE Group's long term liabilities. Management performed a commendable job in aggressively reducing the group's long-term debt.

€ m	2008	2009	2010	2011	2012
Accounts Payable	944	813	769	750	785
Accrued Exp.	643	612	562	531	486
Short-term Borrowings	5	3	6	2	1
Curr. Port. of LT Debt	**633**	**33**	**2,083**	**761**	**1,414**
Curr. Income Taxes Payable	58	133	71	16	32
Unearned Revenue,	228	257	249	191	175
Other Current Liabilities	475	227	187	208	175
Total Current Liabilities	**2,986**	**2,078**	**3,926**	**2,458**	**3,067**

A snapshot of OTE Group's current liabilities. A deeper analysis is needed to understand the real picture of a company's short term debt from floating/fixed rates, debt covenants, refinancing terms and due dates.

Outperformance - The industry lens

The geographic lens to outperformance has provided an in-depth analytical view of outperformers, but our research wouldn't be complete without understanding outperformers from an industry lens. In the table below, we grouped all 446 outperformers into the 11 industries as defined by the Global Industry Classification Standard (GICS) and sorted them in descending order of the number of outperformers. On the right-hand side, we included a column which shows each sector's representation relative to its market listing size (number of companies).

Industry	Number of companies	Representation in subset group	Market listing representation *
Information technology	115	25.8%	12.7%
Industrials	68	15.2%	17.6%
Healthcare	63	14.1%	9.4%
Materials	60	13.5%	11.0%
Consumer discretionary	47	10.5%	11.3%
Financials	27	6.1%	12.6%
Consumer staples	21	4.7%	6.5%
Communication services	19	4.3%	4.4%
Real estate	13	2.9%	7.1%
Energy	8	1.8%	3.8%
Utilities	5	1.1%	3.6%

Market listing representation: The percentage of companies with a market capitalisation above $550 listed from an industry.

The three sectors highlighted in green (information technology, healthcare and materials) were industries that outperformed relative to the representation in the public market. Information technology was the best performing sector as it represented 25.8% of the subset group with 115 outperformers but had 12.7% of the overall market listing. This shouldn't automatically lead to a conclusion on which sector is the best in finding outperformers, and as we will explore, cycles, valuations and market sentiment also play a significant role in determining outperformers.

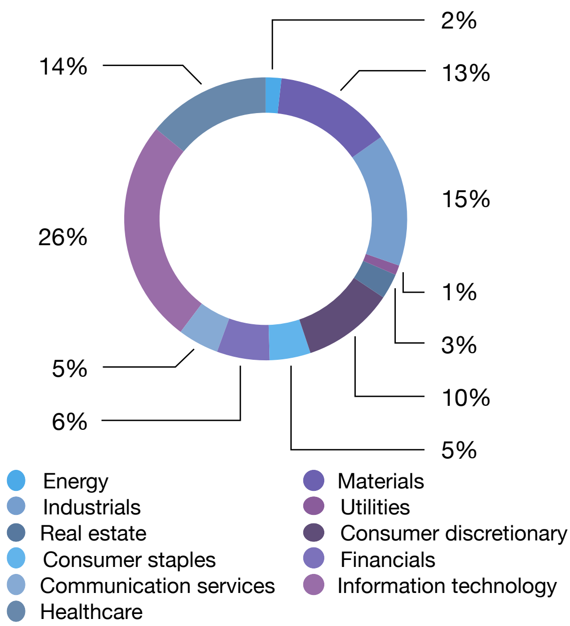
We also examine the sub-segments, i.e. information technology (software, IT services, hardware and semiconductors) and industrials (capital goods, commercial and professional services and transportation) and review how each contributed to producing outperformers within their industry. In some cases, consumer trends, innovation and other structural shifts significantly impacted which sub-segments outperformed. An example is semiconductors which had only one outperformer between 2002-2012 but 44 companies between 2012-2022. In situations like this, there tends to be a bigger picture which must be understood before one makes individual stock pick decisions.

To aid our understanding of outperformers, we included case studies from each industry, providing different lessons on the path to great returns. For example, Trex and Adobe portrayed two different types of turnarounds that required differing solutions. ChemoMetec and Lasertec both returned more than 10,000% over the decade, and each portrays the benefits of industry knowledge when searching for outperformers. Companies like MSCI and Texas Pacific Land Corporation have similar business models, despite being in very different sectors, and each provides some lessons on investing in high-margin "industry toll collectors".

Some key questions we answer during the industry lens research are;

1. Why did the cyclical semiconductor industry go from producing only one outperformer between 2002-2012 to having 44 outperformers between 2012-2022?
2. Why was utilities the least attractive industry and what did all utilities outperformers have in common?
3. Why was only one traditional bank present within the opportunities in financials and what could financials possibly offer an investor beyond banks and insurers?

4. Why have Israeli real estate companies dominated the industry over the period?
5. Why did the cyclical materials industry surprise our expectations in both the 2002-2012 and 2012-2022 periods?
6. How stalwarts like Sony Group and Airports of Thailand produced returns of more than 1,000% despite the slower relative growth
7. Did software really "eat the world" from an outperformance lens?
8. What companies like Adobe, Neste Oyj and Trex teach us about turnaround investing
9. What to do when the market presents high-quality companies like Nihon M&A, ANTA Sports and Reply S.p.A at very low valuations
10. Why the industrials sector produces some of the best unlikely compounders



The case study list by industry

- Energy (Neste Oyj and Texas Pacific Land Corporation)
- Materials (SRF Limited, Ganfeng Limited and Treatt)
- Industrials (Trex, Airports of Thailand and Nihon M&A Center)
- Utilities (Terna Energy)
- Real estate (Argan SA and Phat Dat Real Estate)
- Consumer discretionary (ANTA Sports and Tesla)
- Consumer staples (Salmar and Britannia Industries)
- Financials (MSCI and Hypoport)
- Communication services (JYP Entertainment and CD Projekt)
- Information technology (Reply S.p.A, Adobe, HMS Networks and Lasertec)
- Healthcare (ChemoMetec, M3 and Abbott India)

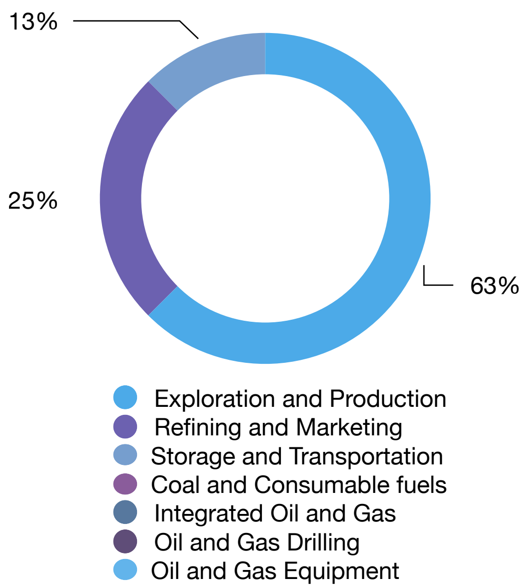
Energy

Outperformers: 8 companies

The energy sector was among the industries with the least companies in the subset list; only utilities performed worse than energy. The energy industry also underperformed relative to the market listing - energy companies made up 3.8% of the global listed market but were just 1.8% of the subset group.

Energy, like most commodities, is cyclical and largely dependent on the price of the underlying commodity, whether oil, gas or coal. These commodities are susceptible to exogenous shocks, i.e. the Arab spring in the early 2010s, the growth of China, the growing competitiveness of the hydraulic fracturing process in the US, and the Covid-19 pandemic. Oil prices sometimes affect the volume of exploration and production projects; exploration players will often use the oil and gas prices to determine the capital expenditure on current projects. The OPEC (Organization of Petroleum Exporting Countries) nations also adjust volume output in accordance with pricing goals.

The volatile energy prices ultimately impact the volatility of their share prices, and if we examine the number of companies that returned 1,000% or more after hitting their ten-year share price lows during the decade, 88 energy companies (7.9% of this sample size) accomplished this. This volatility shows why energy companies do not make great "buy-hold-and-forget" investments.



Sector split

We split the energy industry into seven sub-segments, but only three sectors had outperformers;

- Exploration and production (5 companies)
- Refining and marketing (2

companies)

- Storage and transportation (1 company)

Segments like oil and gas drilling, oil and gas equipment, integrated oil and gas and coal did not have any outperformers.

Exploration & production is often seen as the riskiest segment of the energy supply chain, with many losers and only a handful of winners, hence why most outperformers were within this segment. Exploration drilling volumes also correlate strongly with the oil price. Between 2015 and 2016, following the oil price crash, global exploration drilling nosedived from 3,500 exploration & appraisal wells annually in 2012 to 1,600 in 2016.

For the producers, potential earnings and oil discoveries are similarly cyclical. Only one of the three pure-play exploration and production companies, Mari Petroleum Limited, a Pakistani operator that produces over 100,000 barrels of oil per day, remained profitable every year since its IPO in 1994, a record even oil majors like BP, Shell and Chevron did not achieve. Mari Petroleum also has a 70% success rate in its exploration projects compared to the international industry global average of 14%.

Other exploration-focused companies like Headwater Exploration, the Canadian natural gas company operating in the western Canadian Sedimentary Basin and onshore in New Brunswick, saw their operating profits fluctuate evenly between profitable and loss-making years.

While luck plays a significant role in discovering oil and gas fields, factors like experience, operational prowess, deal and incentive structure and the horizon/culture of its people also determine the level of success. Another factor contributing to some success stories within the energy industry is the ability to reinvent one's operations for the future, and we examine how Neste Oyj created value for shareholders with a new product. Geography also plays a vital role for some in achieving long-term success, and here, we look into Texas Pacific Land Corporation.

Energy case study

Neste Oyj - A Finnish turnaround story

Return: 1,625%

Neste Oyj's history goes back to the 1940s when the Finnish government began taking steps to ensure Finland had sustainable access to refined fuels. Back then, Finland did not have an oil industry, and its first oil refinery was only completed in 1957 (Naantali) and the second in 1965 (Porvoo). Neste later expanded into natural gas and retail services with branded petrol stations across Finland. After becoming a listed company in 1995, it merged with Imatran Voima, the state-owned electricity company but spun off as Neste Oil.

Image: A picture of Neste's plant (left) and a branded Neste oil station (right). Neste has disposed some international stations in Poland and Russia in more recent years. (Neste's website)

What separates Neste from other oil refiners is its NEXBTL refining technology which turns fats into molecules that replace fossil raw materials. The technology is critical to its renewable diesel arm, which services fleets and municipalities seeking to reduce CO2 emissions. The Neste MY Renewable Diesel results in 90% less greenhouse gas (GHG) emissions over the fuel's life cycle. Neste expanded its renewables division into new applications like plastics made entirely from recycled materials, sustainable aviation fuel and other renewable chemicals like paints and lubricants. Today, Neste is the largest producer of renewable diesel and renewable jet fuel in the world.

Investment Case

Neste's investment case was not easy for investors to spot. A stock screen of Neste would show no revenue growth during the ten years. Its €13.6 billion revenue in 2021 was lower than the revenue figures in 2011, €14.2 billion. The investment case was certainly not a growth story in volume but a turnaround driven first by a new product and then macro factors.

Turnarounds sometimes require businesses to take two steps backwards to go forward. For Neste, this was shifting its focus from just refining oil to the opportunity in renewable diesel. As oil product profits decreased during the decade, its renewables arm accelerated. By 2016, the renewable products segment brought more earnings than the refined oil division despite only accounting for 23% of revenue. Management also announced its intention to rename the firm Neste Oyj from Neste Oil, further communicating this strategy of becoming more than a fossil fuel refiner.

Exports of its renewable diesel also expanded beyond just Finnish and European clients; North American clients now represent a third of revenue from less than 10% in 2011. Utilisation rates of the renewable diesel plants also improved over the years, and Neste invested in better vegetable oil and feedstock mix.

Macroeconomic factors also played a significant role for Neste. Government initiatives to reduce carbon intensity like the California Low Carbon Fuel Standard (LCFS), the US Blenders' Tax Credit and the 7% cap on EU crop-based biofuels supported Neste customers switch to renewable diesel.

Operating margins improved from fluctuating between 1.2% and 3.7% between 2008 and 2014 to an all-time high of 14.8% in 2021. As of 2021, the renewable division generated an operating margin of 21% compared to the 0.9% margin in its oil products division.

The operating profit margin expansion from its renewables arm and the increase in investor appetite for renewable companies via ESG ETFs and active funds expanded the EV/Revenue multiple from just 0.2x (EV/EBIT 10.9x) to 2.9x (EV/EBIT 19.9x) by 2021.

Lesson

Although Neste was not a revenue growth story, there was profitability growth during the period driven by the expansion of its more profitable renewables division, improving government policy to support renewable fuels, the expansion in relative valuation metrics and increased investment appetite for renewable companies.

The removal of 'oil' in Neste's name was not just a marketing ploy but an actual shift in management focus. For investors, this could have been a turnaround signal to re-assess the opportunity Neste presents. Investors who waited a year after the name change and for Neste to cement its position as the largest renewable diesel producer would still have seen a 435% return (32% CAGR) in the following six years. Like many turnaround opportunities we assessed, investors did not need to predict success before profitability arrived but needed a good understanding of the business drivers, such as the NEXBTL potential economics versus fossil fuel and how government policy could influence Neste's success.

€ m	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021
Revenue	16,407	15,554	13,069	9,070	9,408	11,732	13,466	14,362	10,357	13,631
Cost Of Goods Sold	14,857	14,042	12,111	7,587	7,381	9,579	11,164	10,867	7,970	10,349
Gross Profit	1,550	1,512	958	1,483	2,027	2,153	2,302	3,495	2,387	3,282
Op. costs	1,286	938	862	896	925	986	1,163	1,276	1,327	1,262
EBIT	**264**	574	96	587	**1,102**	1,167	1,139	2,219	1,060	**2,020**
EBIT Margin	**1.6%**	3.7%	0.7%	6.5%	**11.7%**	9.9%	8.5%	15.5%	10.2%	14.8%

EV/Rev	0.29x	0.34x	0.46x	0.87x	1.15x	1.34x	1.39x	1.73x	4.05x	2.85x
EV/EBIT	29.0x	12.98x	19.89x	29.61x	9.75x	12.63x	15.31x	16.00x	25.67x	19.93x

Notice how volatile Neste's earnings are. This is common for cyclical businesses, and it is important you factor these in when valuing energy companies.

Although there was no revenue growth between 2012 and 2021, operating income grew sixfold thanks to the better economics in its renewable division.

Texas Pacific Land Corporation - An oil toll collector

Total return: 2,637%

Although Texas Pacific Land Corporation (TPL) is listed in the oil and gas exploration and production sub-industry, TPL is far from your regular exploration company. Its history goes back to the 1880s, when it was created through a federal charter that provided a mandate to build a transcontinental railroad from Texas to California. It never completed the entire rail line but was entitled to 3.5 million acres of land in Texas. The gusher age, a period when large petroleum reserves were discovered in Texas, was pivotal for the trust. By 1920, its first oil pipeline was built in the Permian Basin, and over the next decade, Texas' role in US oil production significantly grew.

Today, TPL operates a (1) land resource management (70% of revenue) and a (2) water services and operations (30% of revenue) segment. TPL generates revenue from different stages of the oil and gas development value chain. It provides sourced and treated water for a fixed fee during drilling, while during production, it receives oil and gas royalty interests for its land. It also generates revenue from pipelines, power lines, utility easements, and other midstream infrastructure projects across its 19 counties.

Investment Case

With 880,000 acres of land in West Texas, TPL is positioned as the 'toll collector' in the Texas oil industry. For the land and resource management segment, TPL has no competitor on its land, while its land in the Permian Basin gives the corporation a unique position for operators. Significant customers include oil majors like Chevron, ConocoPhillips and Occidental Petroleum. These three represent 41% of TPL's total revenue.

Image: Pumpjacks operating on oil wells in the Permian Basin. (Daniel Acker/Bloomberg)

Its business model is not seasonal, but the value of its royalties depends on oil and gas pricing and drilling activity. US field production declined between 1970 and 2011 as major US states became less globally competitive (the discovery of oil in Alaska drove some output during that period). The advancements in the hydraulic fracturing process in the late 2000s transformed US oil and gas volumes. As a result of this renewed activity in Texas, TPL grew revenue and profits by more than 12-fold during the decade.

In terms of operating costs, TPL has very low CAPEX requirements (less than 10% of revenue), and its operating profit margin has consistently been above 70% since 2000. Only six non-REITS or financial services companies were more profitable than TPL in 2021 in the global mid-cap and large-cap segments. The benefit of TPL's high margin and debt-free balance sheet is that TPL can also pay good dividends and buy back many outstanding shares. TPL has purchased its shares every year except in 2003 and 2020 since 1993, with total shares outstanding declining by more than 50%.

From a multiples view, TPL never looked cheap. EV/Revenue averaged 18x while EV/EBIT averaged 21x. But these multiples are well justified given its profitability, monopoly, and impressive growth.

Lesson

In hindsight, the Texas oil boom of the past decade benefitted TPL. But even in the decade before 2012, TPL returned 590% (22% CAGR). TPL's business model is similar to many internet platforms, where it takes a share of customers' success. With even smaller operating costs than its internet platform peers, TPL's business model is more attractive. A benefit of big profit margins, as in TPL, is that management can pay dividends or buy back shares, as TPL did, providing additional value to shareholders.

TPL also shows the results of an open-minded investment approach. While the energy industry is not the most attractive place to search for stable and high-quality businesses, TPL has shown desirable qualities for a long-term compounder. 'Quality investors' would have screened out cyclical or low-margin industries like energy, removing TPL from their potential investments despite its even more favourable economics than almost traditional quality companies.

	2013	2014	2015	2016	2017	2018	2019	2020	2021
EBIT Margin	93.7%	93.1%	96.3%	95.8%	94.1%	87.1%	81.5%	71.9%	81.9%
Debt/ Capital	-	-	-	-	-	-	0.7%	0.4%	0.2%
Revenue Growth	34.6%	28.8%	41.5%	(16.0%)	134.9%	94.5%	63.6%	(38.3%)	49.0%
EBIT Growth	36.9%	28.1%	46.4%	(16.5%)	130.6%	80.0%	53.2%	(45.6%)	69.8%

TPL's balance sheet was extremely healthy while operating margins ranged between 81% and 94% between 2013 and 2021.

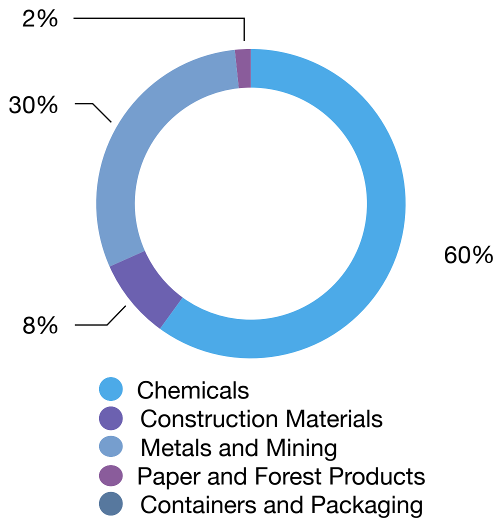
TPL doesn't need debt or excess CAPEX to manage operations which is unusual for the energy sector.

Materials

Outperformers: 60 companies

The most surprising industry relative to our initial hypothesis was the materials industry, representing 14% of the subset group. Despite the cyclicality in commodity prices, from metals to the chemical sectors, the materials industry produced an impressive number of companies in the subset group. We initially attributed this mainly to the super cycle the mining industry experienced in recent years. However, between 2002 and 2012, 18% (54 of 300 companies) that returned 1,000% and are still listed today were from the materials industry, again showing a high percentage of the top performing companies come from the materials industry.

Within materials, 60% of the opportunities were from the chemicals segments, while metals and mining was the second largest segment at 30% of the industry. Only four of the 36 chemicals companies were non-Asian companies. 20 of the 32 Asian companies were Indian, with Alkyl Amines Chemicals Limited, an Indian producer of amine and amine derivatives for the pharmaceutical and agrochemical industries being the standout performer, returning 13,549% during the period.



In metals and mining, mining-rich countries such as Australia, Canada and Russia produced most of these companies, as expected. A few companies benefitted from the rise of electric vehicles via their ownership and development of critical metals like lithium, cobalt and nickel. One was the Canadian lithium miner, Frontier Lithium, which recently discovered lithium deposits in its PAK projects with a projected lifetime revenue of up to $8.5 billion (CAD).

Press Metal Aluminium in Malaysia and Century Iron and Steel in Taiwan were some of the few exceptions. Rather than expanding into new materials, both companies focused solely on their respective metals and other value-added derivatives, which allowed them to earn higher margins. Beyond the two key materials segments (chemicals and metals and mining), there were six other companies, with all but one company from Asia.

Only four of the 60 materials companies had a market capitalisation above $1 billion in 2012, which emphasises the importance of the law of small numbers in the materials industry. From an industry perspective, there are two main types of companies that outperform in the materials industry; (1) companies that focus broadly on one material but expand by growing into derivative products and (2) companies that expand by entering entirely different materials.

The former group required companies to have a high-quality focus on research and development, customer needs awareness and product application expansion. As we will show in the case studies below, innovation played a key role for these companies.

The latter segment required exceptional capital allocators who knew how to manage debt and cash effectively for future acquisitions and were patient enough to wait for the imminent downturn in the materials cycle. Afrimat, the South African construction company's well-timed expansion into the iron ore industry just as iron ore prices fell in 2015, was the main reason for its outperformance relative to peers.

For case studies, we examine SRF Limited, a diversified Indian materials group, Ganfeng Lithium, a Chinese founder-led integrated lithium group and Treatt, a British turnaround story with a 100+ year heritage in the natural extracts and fragrance industry.

Materials case study

SRF Limited: An Indian diversified chemicals group

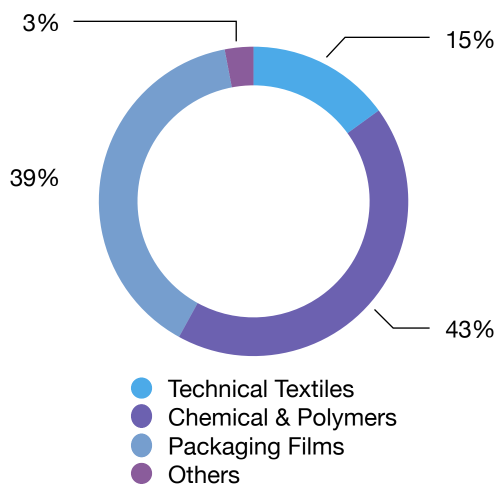
Return: 5,754%

With India representing 25 of the 60 materials subset group, it is important we explore the major Indian companies and understand their economics, growth factors, operational models and management culture.

Shri Ram Fibre's (SRF Limited) history goes back to its parent company, Delhi Cloth & General Mills, one of India's largest conglomerates founded by Lala Sri Ram in the 1880s and operated mainly in the textile industry. In the early 1970s, SRF spun off and focused on manufacturing nylon tyre cord fabrics. In 1990, the group began diversifying beyond technical textiles into chemical products like refrigerants, chloromethanes and pharmaceutical propellants.

Today, SRF maintains its founding-family leadership with the Arun Bharat Ram family via the parent company, KAMA Holdings. Although concentrated mainly in India, SRF also has plants in Thailand, South Africa and Hungary. The company is grouped into three core segments:

1. Technical Textiles (15% of revenue)
2. Chemicals & Polymers (43% of revenue)
3. Packaging Films (39% of revenue)
4. Others (3% of revenue)



Investment Case

Between 2010 and 2014 (March-end FY), SRF's financial performance was lacklustre, and its share price only appreciated by 29% during that period. Operating profit margins declined from 19.6% in 2010 to 7.6% in 2014, while earnings declined by 38% during the same period.


Images: These are product applications of SRF's fluorochemicals business. (SRF Limited website)

During downturns in cyclical industries, we first need to identify if the issues are either macro, i.e. supply shocks like a pandemic or micro and company-specific, i.e. worsening utilisation rates, deteriorating cost structure or losses in customer contracts. For SRF between 2010 and 2014, most of its struggles were macro-induced factors. For example, refrigerants used in air-conditioning suffered from slower sales in air-conditioners and automobiles in India (auto sales fell 8% in 2013), the coated and laminated fabrics saw pricing pressure with the entry of Chinese players into the market while the South African division of its belting fabrics suffered from poor activity in its mining customers.

Reducing its reliance on lower-margin technical textile operations was vital to restoring growth, and the division had accounted for just over 50% of its total revenue in 2012. By 2022 FY, technical textile represented less than 20% of total revenue and profits.

Chemicals and Packaging Film divisions

Revenue and profits from the chemical and packaging film segments grew from 46% of total revenue to 82% in its latest FY.

In the chemicals division, SRF acquired Dymel from DuPont, making the group the only Indian manufacturer of HFC 134a, a chemical essential in medical applications such as a propellant for medical aerosols, in refrigeration and air conditioning systems. New plants were commissioned to serve customers beyond India and export to over 60 countries. This was a common trend across the quality Indian materials companies as many expanded their export business to achieve larger volumes. Transitioning from domestic customers to exporting opportunities opens a materials company to new clients, keeps them better aware of their global operational competitiveness and products, unlocks more acquisition prospects, and provides more insights into broader expansionary opportunities. SRF also bought a smaller business in South Africa, opened new plants in Hungary, and acquired new patents to serve its global client base better.

In Packaging Films, SRF developed a new strategy focusing on more value-added products and improving efficiencies to maintain a utilisation rate of near 100%. The group also deepened its relationships with multinational companies operating in its markets and added more BOPET film capacity. This boosted revenue growth from its packaging division by 440% between 2014 and 2021.

Overall, while the textile division's revenue and profits remained flat between 2014 and 2022, the chemicals and packaging film divisions grew revenues by 444% (23% CAGR) and earnings by 1157% (37% CAGR). As a result, the multiples expanded from 0.9x EV/Revenue (8.1x EV/EBIT) to 5.7x EV/Revenue (27.6x EV/EBIT) between 2014 and 2022.

Lesson

Diversified material companies are generally difficult to assess due to their complex operations. Investors first need to segment each division and then map out both macro and micro business drivers within each segment.

Differentiating macro from micro issues is also crucial, and it requires investors to compare companies with their rivals. In SRF's case, businesses like Anupam Rasayan, Century Enka Limited and Ester industries provide a comparative guide to gauging how SRF performs. During downturns, the weaker companies lose revenue and profits faster and may report losses of contracts with customers more often than peers. When the industry is over-earning, every company's revenue and profits go up regardless of the quality of operations. This is usually when an investor should be cautious when making investments. Like SRF Limited, companies who made investments during bad times, like when air conditioning sales plummeted, affecting the chemicals division, showed which management team was more forward-thinking.

Due to the lack of progress in its largest segment, Technical Textiles, SRF Limited would not have looked like a growth opportunity until 2018, but analysts who looked behind the numbers might have spotted the improving operations in the smaller segments and its actual growth potential.

SRF Limited also teaches us how acquisitions and expansion in an export market can support the growth of commodity companies. To fund these acquisition and expansionary plans, SRF did not need to issue new shares and was transparent with shareholders on areas they would prioritise, such as value-added products beyond its traditional textile segment.

₹	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021
Revenues	**40,010**	**37,830**	**40,181**	**45,399**	**48,983**	**51,366**	**56,849**	**70,996**	**72,094**	**84,000**
Technical Textiles (TTB)	21,467	21,313	21,857	20,396	19,050	20,102	18,388	17,349	13,576	12,401
Chemicals Business (CB)	12,041	10,350	9,563	12,634	16,398	17,214	16,114	24,454	29,750	36,449
Packaging Film (PF)	6,602	6,208	8,830	12,460	13,606	14,092	17,823	26,533	26,040	32,917
PF as % of revenue	17%	16%	22%	27%	28%	27%	31%	37%	36%	39%
EBT	**7,339**	**4,760**	**3,494**	**5,576**	**7,687**	**7,857**	**7,964**	**10,790**	**12,504**	**18,285**
(TTB)	1,145	1,234	1,631	1,957	1,810	2,571	2,529	2,615	1,515	1,769
(CB)	5,941	3,465	1,913	2,983	3,936	3,274	2,694	3,843	5,115	7,281
(PFB)	252	60	(50)	636	1,940	2,013	2,298	4,115	5,556	8,979
(PF) as % of EBT	3%	1%	-1%	11%	25%	26%	29%	38%	44%	49%

The packaging film and chemicals businesses accelerated SRF's margins. In chemicals, SRF is the sole supplier of F32, F134a and F125 in India, and recent import duties on Chinese companies have supported SRF's pricing power. See 2021 annual report.

Between 2012-2014, SRF was not necessarily a bad business as the macro environment impacted profitability. This is usually the best time to invest in materials as markets often project macro issues into company-specific ones.

Ganfeng Lithium - Leading the Chinese lithium ecosystem

Return: 2,749%

Ganfeng Lithium is an integrated lithium compounds manufacturer founded in 2000 by its current CEO and chairman, Li Liangbin. Its lithium operations are segmented into four areas of the lithium value chain:

- Lithium metals
- Lithium compounds (Lithium Hydroxide, Lithium Carbonate)
- Lithium batteries
- Lithium battery recycling

Between 2000 and 2007, Ganfeng mainly focused on extracting lithium chloride from brine in salt lakes and its n-butyllithium production. In 2009, its technological progress advanced operations into higher value-added battery-grade lithium carbonate from brine. Ganfeng was listed on the Chinese stock exchange in 2010, becoming the first listed lithium Chinese company.

Investment Case

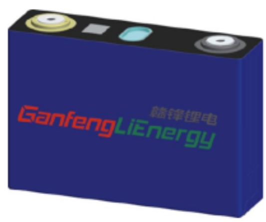


Image: A Ganfeng Lithium project in western Australia (left) and a recently launched Ganfeng battery cell (right). (company website)

Lithium has not always been as relevant as it is today. Although the first commercial lithium-ion battery was issued in 1991, global production only took off significantly in 2016, with approximately 75% of production from China. The metal is mainly sourced from Western Australian mines and salt lakes in South America and China (75% of lithium reserves).

The period between 2012 and 2015 was critical for Ganfeng as it began cementing its foundations for global lithium leadership. It completed its 10,000-ton lithium salt plant in 2013, and in 2014, Ganfeng expanded downstream and upstream with investments in Spodumene projects in Ireland, Argentina and Australia. Production was still mainly in lithium compounds, but its first battery plant in Dongguan, Guangdong, was already nearing completion. Battery production operations began in the plant in 2016, and today, there are five battery production bases across China and five lithium compound industrial parks.

Ganfeng again expanded both upstream and downstream after 2015 to have a more substantial control of the lithium ecosystem. It entered into new lithium material joint ventures in countries like Mexico and Mali and expanded into the lithium recycling economy via the Ganfeng Recycling plant commenced in 2017.

Ganfeng Lithium and the other Chinese lithium outperformers like EVE Energy and Tianqi Lithium were more aggressive than their western rivals like Albermarle but to understand their growth model, we need to understand the Chinese electric vehicle market.

Chinese Electric Vehicle demand

Although Ganfeng currently has operations outside China (22% of revenue in 2021 was from overseas clients), the demand for lithium batteries is primarily driven by Chinese EV sales. Between 2010 and 2020, China was the largest EV producer, representing 4.6 million or 44% of global production and growing by 166% in 2021. The battery is a third of the costs in EVs, and 80% of lithium-ion batteries in the world are used in EV production. With customers ranging from LG Chem, Tesla, and BMW, among others, Ganfeng's lithium value-chain operations are critical for the industry's growth.

Despite this growth, lithium as a commodity has not always had favourable economics. Lithium Carbonate prices almost halved between 2017 and 2020, with many pointing to the oversupply of lithium in Australia. The poor lithium sentiment also affected its Hong Kong listing in 2018 when it underperformed due to weak investor appetite for lithium stocks.

For Ganfeng Lithium, its strategy wasn't solely dependent on favourable pricing, but also on volume growth in both lithium batteries and lithium compounds. Over the past ten years, Ganfeng's revenue and operating profits have compounded by 40% and 59%, respectively. The battery division only

China's Ganfeng Lithium Prices IPO at bottom of range raising $422m

Henry Sanderson OCTOBER 4 2018

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China's Ganfeng Lithium, one of the country's largest producers of the raw material used in batteries, priced its initial public offering in Hong Kong at the bottom of its expected range, raising $422m.

Image: Ganfeng's 2018 IPO in Hong Kong IPO was not appreciated by the market as lithium prices had declined. (Financial Times)

went online in 2016 and represented 18% of revenue by 2021. Despite the significant decline in lithium market prices in 2019, operating profit margins remained in double-digits (14.9%) thanks to this diversification, expansion upstream and control of its lithium ecosystem.

Lesson

Value investors primarily focused on relative multiples would have found Ganfeng Lithium very expensive. Its EV/EBIT rarely fell below 40x (only during 2018-2019, when lithium prices fell by half). Growth investors would have said its earnings are too dependent on the cyclical lithium price, while quality investors would have screened out all materials industry players.

As we have learned from Ganfeng, growth investments can also be found in cyclical industries, and value investments can be in companies with high earnings multiples if the growth is fast enough (100x 2011 earnings was less than Ganfeng's 2021 earnings).

In both situations, what matters is not necessarily the current position but rather future projections and what steps mining companies may seek to counter the pricing falls of the commodity. For Ganfeng, its buffer was volume growth, its global advantage as a Chinese company and expansion into value-added products like its single cell and battery systems. Despite the decline in earnings in 2019, profits that year was still more than ten times bigger than its 2012 earnings.

Catalysts such as its entry into batteries, new contracts with EV leaders like Tesla and BMW, and its forward-thinking acquisitions showed Ganfeng had the edge over western peers like Albermarle. This is important because scale alone can not win quality clients in value-added material businesses. Unlike the core material segment, derivative products need to be competitive due to the client's need for performance and battery durability. Without a chemistry degree, one way investors can assess global competitiveness is by seeing who is winning new clients and how long contract terms are valued.

Unlike SRF Limited, Ganfeng Lithium diversified within the lithium ecosystem rather than entering new materials. This is a common strategy in fast-growth materials like lithium. To assess if management is making the right decision, expansionary plans have to fulfil one of these (1) value-added products, thus, better margins, (2) insights and knowledge into new applications or (3) improved control of its ecosystem and 'volume power'. In Ganfeng's case, its expansionary plan achieved all three objectives.

¥ m	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021
Revenue	628	686	870	1,354	2,844	4,383	5,004	5,342	5,524	11,162
Cost Of Goods Sold	492	528	684	1,064	1,871	2,601	3,202	4,108	4,343	6,720
Gross Profit	137	159	186	290	973	1,782	1,802	1,234	1,182	4,442
Op costs	60	73	90	120	184	297	461	455	328	953
EBIT	76	86	95	169	789	1,485	1,341	779	853	3,489

EBIT Margin %	12.1%	12.5%	11.0%	12.5%	27.7%	33.9%	26.8%	14.6%	15.4%	31.3%
Revenue growth	32.2%	9.3%	26.7%	55.7%	110.1%	54.1%	14.2%	6.8%	3.4%	102.1%
EBIT growth	37.3%	12.6%	11.1%	77.6%	365.9%	88.4%	(9.7%)	(41.9%)	9.5%	309.0%

Commodity companies are cyclical and you should not neglect the supply and demand drivers of the commodity. For Ganfeng, this is lithium and since 2017, lithium spot prices have been very volatile.

The volatility didn't stop Ganfeng Lithium from growing its revenue yearly, driven by its aggressive volume growth across its operations.

Treatt - A British turnaround

Return: 1,193%

Treatt, founded in 1886 by Richard Treatt, is a natural extracts and ingredients manufacturer for the flavour, beverage and fragrance industries. Via its manufacturing sites in the UK and US, Treatt sells over 1,700 products across 75 countries in seven categories - citrus, tea, coffee, fruits & vegetables, spice and florals, health & wellness and aroma. The largest of these segments is citrus, which comes from fruits like oranges, lemons and limes, and exposes its operations to the cyclical orange oil price. Prices are also dependent on weather, population growth and other macro factors.

Treatt's customers are either fast-moving consumer goods (FMCG) beverage brands (41% of sales) or flavour and fragrance brands (59% of sales). Treatt has a 10+ year relationship with its top ten customers by sales value. Almost half of its total sales come from these top ten customers.

Investment Case

Treatt's current CEO, Daemmon Reeve, was promoted to CEO in 2012 after a 20-year career rising through the ranks at Treatt. The board selected him to lead the turnaround after Treatt had struggled to achieve double-digit margins for a few years. The turnaround process at Treatt can be split into two stages; the initial strategic focus on its global operations and then the transition into value-added and higher margin products.

Daemmon Reeve announced the new strategy in late 2012, which focused on increasing Treatt's profitability. Inefficiencies were discovered at the UK plant, and management concluded it needed to relocate to a more modernised facility to boost long term utilisation rates and Treatt's responsiveness to demand fluctuations. It can be challenging for management to make such strategic shifts given the impact on immediate profits

Image: Treatt moved into a new facility in the US to lead a company-wide expansion (company website) and market short-termism. The new headquarter in Suffolk, England, was only completed in 2020. Treatt also expanded its US operations at Lakeland, Florida, strengthening the capacity in health & wellness, tea and fruit & vegetable segments.

Second, there was an upgrade in customer segments into iced tea and sugar reduction customers, which supported its value-added ambitions and now represents 29% of total revenue. This process required Treatt to work closely with customers in formulating new blends, conducting taste trials and exploring different beverage applications. Again, we see how awareness of customer demands and responsiveness to global trends such as healthier living can benefit companies. This response allowed Treatt to outperform its revenue goals while also growing its profitability margin, given the higher profit margin in these value-added healthier living products.

The £100 million sales goal initially set for 2020 was achieved in 2017, and operating profit margins improved from 7.6% in 2012 FY to 12.2% in 2017 FY. After 2017, the export market became increasingly more critical, with regions like Germany (+30%), South America (+97%) and China (+27%) seeing record revenue growth. Sales in the UK now only represent 7% of total revenue, from 14% of total revenue in 2012. By 2021, operating margins hit a record high of 17%, more than double the 7.6% operating margin achieved during the 2012 FY (September year-end).

With margins improving and the company achieving earnings growth, analyst coverage improved, and Treatt saw a multiple expansion from 0.6x EV/Revenue (6.7x EV/EBIT) in 2012 to its latest 4.2x EV/Revenue (31.4x EV/EBIT).

Lesson

Among the materials businesses we assessed, Treatt's investment case was the most difficult to have spotted as revenue growth was among the slowest in the group. While the demand for healthier living products was apparent, the opportunity in citrus and fragrance chemicals was unclear, and its exposure to orange oil meant earnings would be cyclical.

However, we see the beauty of how turnarounds can drive multiples expansion and operating profit growth and margin despite minimal revenue growth. The new management in 2012 was transparent in its targets and strategy, from its budget and expansionary plans in the US to its relocation of the British headquarters.

While most of the share price gains in Treatt resulted from the multiples expansion, we also see how important starting with low valuations in turnarounds is, especially when revenue growth is not explosive.

£	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021
EBIT Margin	7.6%	9.4%	9.5%	10.0%	10.7%	12.2%	12.3%	11.9%	13.7%	17.0%
Debt/ Capital	37.5%	28.0%	28.4%	21.3%	20.6%	24.9%	21.4%	19.6%	7.4%	13.3%
Rev growth	(0.7%)	0.1%	6.9%	8.5%	2.5%	15.0%	10.8%	0.5%	(3.3%)	14.0%
EBIT growth	(21.4%)	24.4%	8.0%	13.6%	9.8%	31.1%	11.5%	(2.8%)	11.6%	41.8%
EV/ EBIT	10.01x	12.90x	10.88x	10.84x	14.21x	20.21x	17.46x	19.17x	32.68x	36.73x

Between 2012 and 2021, Treatt's operating profit margin doubled between 2012 and 2021. Its balance sheet also became healthier as debt to capital decreased over the years.

While we think Treatt 37x EV/EBIT is expensive today, paying 10x earnings in 2015 provided a margin of safety for shareholders.

Industrials

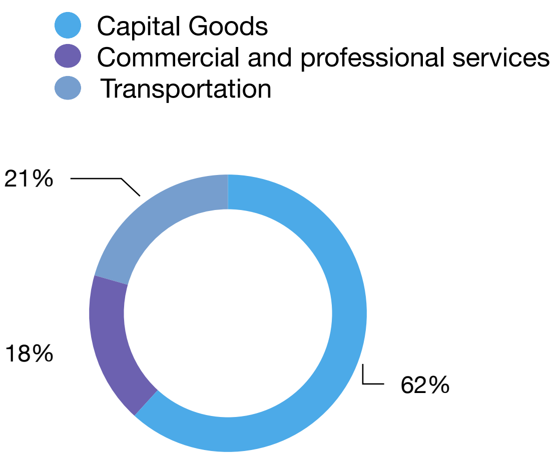
Outperformers: 68 companies

Industrials produced more companies than the healthcare industry (63 companies) and had just as much as the consumer staples and discretionary sectors combined. If we compare this with the 2002-2012 period, industrials similarly outperformed, representing 16% (49 of 300 companies) that returned more than 1,000% during that period.

Industrials are typically thought of as low margin, capital heavy with high political risks and thus generally under-appreciated as a sector for discovering growth opportunities. While these are primarily true, the breadth of industrials means many companies get neglected by the market. This made industrials an exciting sector to explore in terms of finding great investment opportunities in unlikely places.

We split the industrials into three segments:

- Capital Goods (building products, machinery, electrical equipment, machinery, aerospace and defence etc.)
- Transportation (air freight and logistics, airlines, marine, road, rail and transport infrastructure)
- Commercial and Professional Services (Waste management, security services, office services etc.



The capital goods segment represented 68% of the total screened industrial sample size and was 62% (42 of 68 companies), meaning it underperformed relative to its sample size despite the number of outperformers.

Industrial automation was a big driver for this segment as machinery and electrical equipment companies represented about half of the 42 companies. Most of these industrial automation beneficiaries were Indian, Swedish and Chinese companies.

Swedish companies like Addtech and Xano Industri were among the leaders benefitting from the automation of factories, warehouses and plants trend we witnessed worldwide. Beyond automation, various companies developed products that provided cleaner and more sustainable approaches to energy, building and construction. For example, Vestas Wind and Sungrow Power brought innovation to the wind turbine and solar PV industries, respectively. Trex, NIBE Industrier and STEICO each made more sustainable solutions to building products from insulation to flooring, producing lower emissions than traditional alternatives.

Within transportation, there was a relatively even spread across the sub-segments, with companies also coming from asset-heavier industries like airlines and air freight. Given its low margin, political risks and exposure to exogenous shocks, airlines like Jet2 (1,670%) and Air Canada (2,339%) surprisingly produced some of the best returns. All marine transportation companies were Asian companies, with PT Temas Shipping being the best performer (4,718%). Virtually all of their share price gains occurred during the pandemic, fuelled by a shipping price boom.

50% of the 12 companies in commercial and professional services were Japanese consultants. The Japanese consultants mainly addressed economic and social issues like low growth, an elderly population, and talent shortage. Beyond Japan, there was a diverse mix of companies from sectors like waste management, repair centres and protection & treatment services. These companies were typically slow-growth turnarounds or dependent on M&A for growth.

For the case studies into the opportunities in industrials, we analyse a company in each sub-sector; capital goods (Trex), Transportation (Airports of Thailand Public Company) and Commercial and professional services (Nihon M&A). Each were leaders in their respective industries but presented different investment lessons. Airports of Thailand Public Company teaches us how Public-private partnerships (PPP) can unlock value for all stakeholders. In Nihon M&A Center, we learn how great compounders are sometimes born during economic recessions, while Trex shows us how new management can bring new life into an almost bankrupt company.

Case studies

Trex - Revival of a market leader

Return: 1,652%

Trex Company is a manufacturer and distributor of railing, decking and outdoor products for the residential and commercial markets in the US and export markets. Roger Wittenberg created the idea behind Trex after combining sawdust and shredded plastic bags to create a material called Rivenite. Mobile Chemical Co (ExxonMobil) later acquired the technology and rebranded it as Timbrex before going public in 1999.

In the decking industry, lumber is the most well-known material for furnishing. The problem with lumber is that its life span typically lasts 10-15 years due to insects, fading and other maintenance needs. Lumber also contributes to deforestation, which has broader environmental impacts. On the other hand, Trex does not rot, is termite-proof, is primarily made from waste products, and lasts longer than wood.

Over a lifetime, Trex presents a cheaper, easier to maintain, more sustainable and better aesthetic option than wood. Compared to "alternative wood" peers like AZEK, Trex is more susceptible to moisture damage but is better equipped to deal with cracking, especially during temperature swings. The alternative wood decking market has a quarter of the overall market share ($8 billion market) in the USA and Trex is the largest manufacturer in the wood-alternative segment.

Image: Trex patented alternative wood is a market leader in the alternative market (company website)

Its wholesale distribution network generates most of its sales from professional contractors and remodellers to homebuilders. Home Depot and Lowe's purchase Trex's products directly to serve the contractor and the do-it-yourself markets. Other key distributors are Boise Cascade and the U.S Lumber Group, each exceeding more than 10% of Trex's gross sales. Markets beyond the US have lately become crucial for Trex, and their products now reach over 40 countries beyond the US.

Investment Case

Between its IPO in 1999 and 2012, Trex shares mainly traded between $2 and $5 per share. An investment at the end of 1999 would have returned 0% by 2012. Its woeful stock performance was a reflection of its financials and management decisions. Debt levels were pretty high and they violated bank covenants. Operating margins consistently fell from 27% in 2000 to 1.8% in 2006 before going into losses in 2007 (-24%) after lawsuits and product defects were identified in some sold products. The housing market significantly contracted during the financial crisis, further disrupting Trex and its potential growth opportunities.

Its virtual monopoly in wood-alternative products had been a blessing and a curse as the quality of its product dropped. New players like Fiberon and AZEK also entered the market.

Turnaround

Image: Ron Kaplan joined Trex in 2008 and led the company's turnaround from the brink of bankruptcy (Barrons Interview)

The turnaround started with the arrival of Ron Kaplan in 2008. His first step was to identify the problem and measures to address critical issues affecting Trex. It was clear costs were bloated, and its manufacturing facility in Olive branch, Mississippi, was suspended. Other manufacturing operations were consolidated into two plants in Virginia and Nevada. Quality control procedures were also implemented to avoid future product defects, and new distributors replaced other distributors who had terminated contracts. Wages at Trex were also excessively high, and its new CEO axed 10 of 11 vice presidents, including 30 managers. Compensation became subject to the cost of conversion of raw materials to drive efficiency and the new management shifted executive pay into more aligned metrics in productivity and bottom-line earnings.

By 2014, operating margins were back to double-digits (last achieved in 2004) and management looked to the next stage of its turnaround, driving revenue growth. To drive revenue, Trex focused on various key areas. As relationships with US distributors improved, Trex looked beyond the USA and began exporting its products to distributors worldwide. Second, Trex expanded into higher-margin products in its specialty materials segment. The Trex Transcend had more features like fade resistance, scratch resistance, shell protection and more colour options for customers.

Trex also refreshed its branding and marketing approach and communicated its value creation for customers through better stories and advertising channels. More recent campaigns focus on telling family stories that evoke emotions towards house owners. Trex became the number one brand in a Builders Magazine study in 2015 and has since won several campaign branding industry awards.

Despite the lack of growth in the decking market, Trex compounded its revenue by 16% while operating earnings compounded by 35% over the decade.

Lesson

Trex is another example of a "high potential turnaround" case in the subset group. Like most high-potential turnarounds, Trex had the three critical ingredients for a successful high potential turnaround. First, Trex had a star product/franchise/brand with market leadership before its decline. Trex invented the composite-material segment within home furnishing, and at launch, it was well-received by customers, with sales growing 10-fold between 1996 and 2000 while operating margins reached 28%.

However, this monopoly and success brought complacency to Trex. This is where the second key ingredient for a turnaround comes in, a new life for management. While current management can lead a business revival, turnarounds like Trex, where a company goes from industry-leading margins to being at risk of bankruptcy, typically requires new life. From eliminating the inefficiencies to aligning management incentives with shareholders, we see the value Ron Kaplan brought to Trex. The final stage of these high potential turnarounds is the ability to return to growth mode. For Trex, this was possible due to the small market share wood-alternatives had over wood and its value-add for customers. To grow this market share, management expanded into new regions, created new products across the railing, decking and outdoor markets, and built better distribution channels with partners like Lowe's and Home Depot.

In these high-potential turnarounds, do investors need to time investments to the nearest day, month or year? No. If the turnaround opportunity is great, investors can wait for things to look better before investing. Investors who waited six years after the initial turnaround announcement by the new management in 2008 would have still returned 650% from 2014 to date (28.7% CAGR). For most, it's better to wait for results to show in leading indicators. These leading indicators in Trex's case were things like industry awards, customer perception, product space with distributors, and market share gains or improvements in issues such as productivity or quality failures.

We can break this lesson into four key areas:

1. Is it a star product, brand or franchise?
2. Why is the new management the right team? Are they willing to make the hard decisions?
3. What leading indicators do we need to use to assess progress? How are these leading indicators performing?
4. Can they grow revenue and profits beyond the initial turnaround?

$ m	2010	2011	2012	2013	2014	2015	2016	2017
Revenue	318	267	307	343	392	441	480	565
Cost Of Goods Sold	245	204	223	244	252	286	293	322
Gross Profit	73	63	85	99	140	155	187	243
Op. costs	68	61	72	72	72	78	83	101
EBIT	5	2	13	26	68	77	104	142
Net Interest Exp.	(15.3)	(16.4)	(8.9)	(0.6)	(0.9)	(0.6)	(1.1)	(0.5)

EV/EBIT	39.46x	53.71x	85.49x	51.14x	43.23x	20.06x	18.36x	20.41x
EV/ Revenue	1.34x	1.39x	1.91x	2.79x	3.42x	3.57x	3.54x	4.65x

Return on Capital	1.7%	0.7%	5.7%	16.0%	38.5%	40.9%	50.4%	48.7%
Total Debt/ Capital	45.3%	48.3%	5.1%	NA	NA	5.7%	NA	NA

Management focused on paying down debt, which declined from 45% debt/capital in 2010 to 0% in 2013. The healthy balance sheet provided Trex with more room to invest in its product, distribution and brand.

The EV/EBIT, especially between 2010 and 2013, was meaningless and over reliance on this would have made Trex look expensive.

Airports of Thailand plc - Partnering with the public sector

Return: 1,136%

Over the past two decades, we have seen the privatisation of many airports and, more recently, the public listing of airports. There are 51 globally listed airports and airport services companies, with the largest by market capitalisation being Airports of Thailand (AOT). The AOT group was founded in 1903 by the Thai government in preparation for its local airports after the Wright brothers powered the first aircraft. Eleven years later, the Don Mueang Airport, one of Bangkok's two international airports, was officially opened and is Asia's oldest operating airport, with commercial flights commencing in 1924.

AOT went public in 2004 and owns 39 airports, including four international airports at regional sites and the two main Bangkok airports. The Thai Ministry of Finance maintains a 70% ownership.

The Airport business model is split between aeronautical (56% of 2019 revenue) and non-aeronautical (44% of 2019 revenue). Aeronautical revenue mainly consists of landing and parking airline charges, departure passenger service charges and aircraft services such as fees for using boarding bridges, while non-aeronautical revenue consists of office and property rental income, duty-free concession, catering, fuelling services, advertising, and car parking.

Image: Suvarnabhumi Airport (left) and Don Mueang International Airport (right) are the two international airports in Bangkok (Trip adviser)

From a cost view, well-run airports have employee benefits & expenses as their highest costs, then depreciation & amortisation, payments to the state for property come next, and repair & maintenance of infrastructure and utility expenses are the following key costs. These well-run airports can earn an operating profit margin of up to 50%+ during good years.

Investment Case

To understand the investment case for AOT, we have to first zoom out into the macroeconomic landscape in Thailand. As the second largest economy in Southeast Asia, Thailand has seen tremendous economic growth. Thailand achieved one of the highest GDP growth figures, doubling its per capita between 2000 and 2007 and 2007 and 2019. Between 1988 and 2016, people below the poverty line fell from 65.3% to 8.6%. Today, it has one of the lowest unemployment figures in the world (1% in 2020).

A significant driver of airport passenger volume is tourism, and tourism in Thailand contributes 12% to its GDP (the average for countries is 9%). The number of international tourists more than doubled during the decade (pre-covid), mainly driven by Chinese tourists (27% of total tourists). In a Mastercard Global Cities Index, Bangkok was the 2nd most visited city and was 4th globally for adventure. These factors significantly boosted the volume and earnings for AOT.

While the macro case contributed to most of AOT's growth, management took advantage of the financial crisis recovery in earnings and funded various operational developments across its airports. The Suvarnabhumi Airport invested in 28 additional gates and expanded its parking and automated capabilities between 2011 and 2017. The Phuket Airport renovated its terminal and added a new international passenger terminal. Commercial projects such as adding airport malls, hotels, and export exhibition centres further boosted revenue and profitability from its non-aeronautical segment.

Overall, AOT passenger traffic grew by 113% between FY 2011 and 2019, while aircraft movement traffic grew by 103% during the same period. AOT saw its revenue grow by 119% (10.3% CAGR) while operating profits increased by 331% (20% CAGR), improving its operating margin from 24% to 48% between 2011 and 2019.

Coming out of the financial crisis, relative valuations contracted and was 3.5x EV/Revenue (17.6x EV/EBIT) in 2011, ending its 2019 FY at 16.3x EV/Revenue (32.8x EV/EBIT). Since the pandemic, AOT's financials, like other airports, have severely suffered as it made only 24% of its 2020 FY revenue in 2021 while falling into losses.

Lesson

Airports are natural monopolies; there is a limit to how many airports cities can have. While most remain in partial public sector ownership, there's a growing global appetite for privatisation. AOT presents a great model for private-public ownership in listed companies. This is currently more common in Asia, and owning a business that's 70% owned by local authorities might be unusual to many western investors. Some investors even screen out government-owned companies and exclude companies like AOT from their opportunity set.

AOT, like other airports, can be highly profitable when managed with operational excellence. But the real opportunities for investors in airport infrastructure are in those that transition from bad to good or good to great. On average, good airports have EBITDA margins between 30-60%. The opportunities come from airports with EBITDA margins at the lower end but potentially improving to 50%+. This goes contrary to quality investing, as airport investors should actually look for bad quality rather than great quality companies. Another case study in the airport industry is Grupo Aeroportuario del Pacífico, the Mexican listed operator of 12 airports in Mexico.

Macro factors certainly influence an airport's turnaround and growth potential and in countries growing their economic and tourism activity, like Thailand, the ability to increase revenue is more likely. It's crucial for investors in airports to track this and build leading indicators that determine revenue growth. Airport-specific factors are much harder to track, but data points like customer satisfaction and duty-free volume growth provide investors with a lens into the airport's operational progress.

	2010	2011	2012	2013	2014	2015	2016
Return on Capital	2.0%	3.3%	4.9%	7.0%	7.0%	10.4%	10.1%
EBIT Margin	18.3%	24.3%	35.0%	40.9%	40.2%	52.9%	47.1%
Debt/ Capital	47.0%	46.8%	42.2%	32.3%	28.0%	24.2%	21.3%
Revenue growth	11.8%	19.2%	6.2%	21.1%	2.1%	17.0%	15.9%
EBIT growth	48.8%	58.4%	52.8%	41.4%	0.2%	54.1%	3.1%

The airport of Thailand's operating profit margin more than doubled between 2010 and 2013, thanks to the strong recovery in Thailand's tourism and the operational progress in various airports.

It may be tempting to focus on the high-margin airports, but the more significant opportunities are in those that can increase their operating margin due to revenue growth limits in the airport business.

Nihon M&A Center - Born during a crisis

Total return: 1,507%

Nihon M&A Center was founded by its current chairman, Yasuhiro Wakebayashi, during the early 1990s, a decade known as the 'Lost Decade' as the Japanese economy suffered from economic stagnation and price deflation. Nihon M&A Center initially operated in accounting services for Japanese clients, but in response to the Japanese M&A boom, they expanded in 2000 into the M&A business and consulted for Management buyouts (MBO).

Nihon M&A Center mainly focuses on cross-border deals where Japanese companies may expand abroad by acquiring smaller players, or foreign companies may acquire a Japanese company to expand operations in the market. Beyond M&A, Nihon M&A Center also have an advisory business supporting Tokyo Pro Market listings. Outside Japan, they also operate across Southeast Asia and now has over 1,000+ accounting firm partners and 316 regional institutional partners within its network.

Six of the 12 companies in the commercial and professional services segment came from Japan which was surprising. Japanese professional services companies like OUTSOURCING INC, S-Pool, and SMS Co were also in the subset. The question for us was, why are the Japanese services businesses so successful?

Investment Case

There are a few reasons for this. First, on the recruitment side, the ageing economy has caused a recruitment headache for companies and businesses like S-Pool aim to fill this gap. The stagnating economic growth prospects have also shifted companies to either look internally (cost-cutting) or explore acquisitions. Management consultancies benefit more from the former, while M&A houses like IR Japan and Nihon M&A Center benefit from the latter. The ageing economy has also caused companies to struggle with passing the baton to younger generations. In many family-owned companies, selling to a larger peer often seems like the only real opportunity, creating additional opportunities for M&A advisory.

Japan is mainly driven by private merger and acquisition (M&A) transactions and had 403 private transactions of over ¥9 trillion ($67 billion) in value in 2021. Behind these deals are companies like Nihon M&A Center that advise how to structure contracts, the acquisition price and the post-acquisition strategy for the buyer. 90% of its advisory work is with sellers with less than ¥2 billion ($15 million) in sales, and about a quarter of the typical deal activity comes from the construction and real estate industry.

To be a successful M&A firm, one needs expertise in the deal structure, advisory, a deep network of clients and partners, a track record of success and a skilled employee base. While this is not an impenetrable business model, achieving deep networks takes time. We call this "time as a barrier to entry", and since its inception, Nihon M&A Center has advised on over 7,000 M&A deals which helps make them a preferred choice when seeking an M&A partner.

With sellers, Nihon M&A Center collects a retainer fee after signing the advisory agreement and another fee upon completion, settlement and announcement. For the buyer, they collect fees on both occasions and an interim fee after the buyer signs a letter of intent post negotiation of price & terms with the seller. In some cases, firms may approach them to match potential targets.

Operationally, Nihon M&A Center has kept its model the same. They continually invest in relationships and partnerships, which serve as a pipeline for potential deals. Given the asset-light model, spare cash is reinvested into hiring more consultants and expanding cross-border expertise and technology capabilities. Its online matching site, Batonz, mainly targets a core segment of companies with an annual turnover of below ¥100m. Batonz now has more than 100,000 registered users.

Over the past ten years, Nihon M&A Center compounded its revenue and operating earnings by 21% and 20%, respectively, while maintaining a debt-free balance sheet in most years. Since 2008, they maintained an operating profit margin of 40%+ in all but one year (2010). The strong growth and profitability expanded its multiples from 4.3x EV/Revenue in 2012 (9.3x EV/EBIT) to 9.8x EV/Revenue in 2022 (24x EV/EBIT).

Lesson

There are three key lessons we learn with Nihon M&A Center. First, like other Japanese consultancies, many were formed during the lost decade when the Japanese economy structurally suffered. Businesses suffered in different areas from growth strategies and execution, talent recruitment, and other business strategies, and Nihon M&A Center shifted its business model from accounting to supporting companies with their growth strategy. Where problems lie, solutions are also present, and it is vital for investors to qualitatively screen and develop an idea bank of companies or business models that could solve the issues, as with Nihon M&A Center in Japan.

Second, the investment case for consultants and other professional services companies in a service-based economy is quite appealing. The knowledge focus makes most asset-light, requiring very little capital expenditure. Early movers can deepen their networks and expertise through experience and increase barriers to entry via their first mover advantage. Nihon M&A Center has used physical and digital channels to achieve this, from the Batonz matching site to its many M&A and post-merger integration seminars held across Japan.

Image: A screenshot of the Batonz webpage

Lastly, while we expect to see many of these investment cases in the consulting and professional services industry, every quality business model has a price, including Nihon M&A Center. Its multiples reached 75x EV/EBIT peak in 2020, which in our view was too expensive despite its growth and profitability. The share price declined by 60% in eight months and teaches the importance of valuations when analysing investments.

¥ m	*2013	2014	2015	2016	2017	2018	2019	2020	2021
Revenue	7,214	10,547	12,227	14,778	19,069	24,625	28,463	32,009	34,795
Cost Of Goods Sold	2,487	3,491	4,087	5,318	6,979	9,129	11,351	12,558	13,577
Gross Profit	4,727	7,056	8,140	9,460	12,090	15,496	17,112	19,451	21,218
Op costs	1,321	1,608	2,042	2,457	3,044	3,890	4,578	5,204	5,882
EBIT	3,406	5,448	6,098	7,003	9,046	11,606	12,534	14,247	15,336

EV/ EBIT	9.13x	17.97x	20.11x	27.62x	31.95x	35.56x	43.86x	35.93x	52.01x
EBIT Margin %	47.2%	51.7%	49.9%	47.4%	47.4%	47.1%	44.0%	44.5%	44.1%

Nihon M&A Center has consistently earned high margins over the years. Since its IPO in 2004, the EBIT margin has been >30% every year.

The issue quality and growth companies like Nihon M&A Center face is that their valuations become expensive (52x EV/EBIT in 2020).

*Fiscal year end is 31st March

Utilities

Outperformers: 5 companies

The utilities industry was the most unattractive sector to search for outperformers as it only produced five companies during the period. If we also go back to the prior decade, only three companies from the sector returned more than 1,000% (2002-2012). There are many reasons why we rarely see great returns in the utilities industry. Utilities provide basic amenities such as water, gas, and electricity. Unlike their energy sector peers in electricity, utilities connect directly to the local or national grid, and prices are often heavily regulated by the government. These usually have price caps and in some cases, especially in water utilities, they are fully or partially government-owned. During periods of high energy or water costs or exogenous shocks, i.e. water contamination, the utilities are often under pressure to absorb the excess costs to households.

The utilities industry is segmented into five segments:

- Electric utilities (transmission, control, generation and distribution)
- Gas utilities (natural gas distribution and transmission)
- Water utilities (water testing, supply, purification, treatment and irrigation)
- Renewable electricity (fuel cells, biofuels, solar, wind and hydroelectric)
- Multi-utilities

High debt levels was typical across the broader utilities industry and also among the five subset companies. The minimum total debt/EBITDA among the subset group was West Holdings, the Japanese solar power supplier, with 5.2x, or 70% total debt/capital. Without real competition, these companies are often too big to fail, and governments typically step in during challenging periods (not always), allowing utilities to operate with excess debt. Given the guaranteed pricing and customer structure, their steady cash flow supports operating with such high debt commitments.

Finally, while most businesses are relatively stable and profitable in the utilities industry (80% of public listed utilities were profitable in 2019), only 8% achieved a return on capital above 10% in 2019. Only the materials industry performed worse than this on a return on capital basis. We were surprised we even found outperformers from the utilities industry, and all five had one thing in common, renewables.

Renewables

The five utilities outperformers were each focused on renewable energy. There were two European utilities (Greece and Spain) and three Asian utilities (Israel, Japan and Thailand). The solar power producers were in predominately hot countries. Israel, where Enlight Renewable Energy Ltd operates, has reportedly recorded the hottest temperature in Asia. Super Energy Corporation (Thailand) and West Holdings (Japan) operate among some of the hottest regions in Asia. Terna Energy (Greece) and Solaria Energia (Spain) are among the continent's hottest countries in Europe.

Each company benefitted from its government's renewables policy, particularly in solar power production. Greece ranks 5th worldwide in per capita installed photovoltaic capacity thanks to Feed-in Tariffs introduced in 2006, simplifying its authorisation procedure for PV companies, introducing the tender system and most recently, its new licensing regime. Israel has followed similar steps and supported its solar industry's education and research facilities. The Israeli government similarly approved a feed-in tariff in 2008 for solar plants, which coincides with the year Enlight Renewable Energy was founded.

While solar seems to be the more profitable renewable energy path for utility companies, Terna Energy delivered outperformance by growing its wind turbine operations, and we explore the investment case study.

Case study

Terna Energy - Greece's wind energy ambitions

Return: 1,865%

Greece is among the leading countries in the EU in wind energy's share as a proportion of total electricity production (18%), more than tripling its installed capacity over the past decade. Behind this success are companies like Terna Energy which was established in 1997 by its current Chairman, Georgios Peristeris, and merged with GEK two years later. Its first wind park began operations in 2000 with an installed capacity of 11.22MW, and since then, Terna Energy has grown its portfolio of renewable energy across the country. Today, its energy solutions consist:

- Wind energy (866 MW)
- Hydroelectric projects (17.8 MW)
- Solar energy (8.5 MW)
- Biogas and waste management (2.6MW)

Terna Energy has an additional capacity of 406 MW under construction and has set 2,049 MW for construction in future years.

Although its operations are predominately based in Greece (85% of installed capacity), Terna Energy also operates in Poland (11% of capacity) and Bulgaria (3% of capacity). Within Greece, 18 of its 40 installed wind farms are in Karystos, Island of Evia; an area Terna has accelerated its onshore projects.

Images: A Terna Energy hydroelectric project (left) and wind farm (right) in Greece. (Company website)

Evia is one of the windiest areas in Greece, and Terna faces competition in local projects from peers like Iberdrola. Terna Energy had also operated three wind parks in Texas, USA, totalling 520 MW, but these were discontinued in 2021 due to extreme weather conditions.

From a revenue model, Terna Energy operates in four segments; construction, production of energy, trading in electric energy and concessions in public sector works. Construction projects typically have a Public-Private Partnership (PPP) model, which is the norm across the EU. An example is the "Integrated Waste Management of Peloponnese Region", between the "Perivallontiki of Peloponnese", a subsidiary of Terna Energy, and the Region of Peloponnese.

Investment Case

In 2011, Greece set a target of getting 18% of overall energy from renewable sources by 2020. Given Greece's climate and coastal geography, wind energy was prioritised by the government, and the EU and Greek governments created various incentives and schemes to support the industry. Before 2014, cash grants and equipment leasing subsidies were available for wind projects. Feed-in tariffs were established to support new wind power projects, and compensation schemes such as supporting revenue during output curtailments were also implemented to assist project development. Tier one operators such as Terna Energy, Ellaktor Group, EDF EN Hellas, and Iberdrola Renovables took advantage of these and scaled their projects and operations across Greece.

Terna Energy is more vertically integrated than most peers as it does its own construction of wind farms, which permits the group to have better control of the costs, such as; negotiations with wind turbine makers like Siemens Gamesa and Vestas, time management in operational areas such as mapping and site preparation. Terna Energy also works directly with the government in the pre-development phase, which is critical during the bidding process and in securing power to the grid.

Terna Energy's chairman, Georgios Peristeris, who also serves as the Hellenic Association of Renewable Energy Electricity President, gained a first-mover advantage in the early 2000s and ensured Terna had the best locations for wind farms which have significantly contributed to its market leadership in Greece. Beyond wind energy, Terna has also been opportunistic in finding government-backed projects in Greece. Its PPP in Peloponnese, currently Greece's largest waste management operation, continues to drive Greece's sustainable waste operations.

Every year since 2003, Terna Energy has been operationally profitable, and the group has achieved year-on-year revenue growth in all but one year (2010) over the past 15 years. Overall, revenue and operating profits compounded by 18% during the ten years. As Terna Energy delivered above expectations during the decade, markets expanded its multiples from 4.2x EV/Revenue (13.4x EV/EBIT) in 2012 to 6.1x EV/Revenue (20.3x EV/EBIT) in 2022.

Lesson

Unlike most other industries, political analysis is essential in the utility industry, and investors should ensure that companies are politically aligned to achieve growth ambitions. Like the other four utility compounders, Terna Energy ensured its operations and investment areas (renewables) aligned with public policy and national government goals such as renewable energy enrolment and sustainable practices. Utilities is a heavily regulated industry and will often require support from PPPs, subsidies, grants and various schemes to be operationally feasible, given the price caps and heavy capital requirements.

In the EU, there has been pressure on national governments for energy and water practices to be more sustainable, and various schemes have been launched to support these goals. Terna Energy, like Solaria Energia, took advantage of these subsidies and scaled their operations alongside their respective government's backing and support. We also noticed Terna Energy had a reactive approach to utilities growth, which was also common in the other subset companies. By reactive, we mean responding to the public sector growth ambitions, i.e. scaling their wind farms, ensuring wind farms were in non-ecological areas, responding to the government's call for waste management by launching two large-scale projects, and entering Poland after noticing their government's increased subsidies towards renewable energy.

In their latest shareholder presentation, they dedicated six of 27 slides to discussing various energy and sustainable goals by Greece, Poland and other neighbouring countries and how Terna could grow here. Hydrogen, for example, was flagged as a potential growth area given Greece's new

Hydrogen plan, and it will be interesting to see if Terna Energy responds by entering the Hydrogen energy value chain.

	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021
Debt/ Capital	54.0%	51.3%	55.9%	58.6%	65.5%	67.5%	67.6%	70.0%	66.1%	69.9%
EBIT / Interest Exp.	2.2x	1.6x	1.7x	2.2x	1.8x	2.5x	2.0x	1.9x	4.7x	4.2x
EBIT Margin	27.8%	25.1%	27.8%	32.6%	27.0%	39.6%	39.6%	40.0%	37.6%	29.8%
Rev growth	62.8%	12.6%	13.4%	25.5%	13.6%	22.6%	5.6%	2.4%	(16.9%)	63.0%
EBIT growth	48.3%	1.6%	25.3%	47.6%	(6.0%)	79.7%	5.4%	3.6%	(21.8%)	29.2%

Terna Energy's debt levels were high, but this is the norm for the utility industry. Rather than just focusing on debt to capital, it's better to examine if their profitability and cash flow generation can support the interest payments.

Real Estate

Outperformers: 13 companies

Real estates is the largest asset class in the world but it was not until the 1960s in the US and the early 2000s in the rest of the world that it became an asset class within equities. The listed real estate industry had 13 outperformers (2.9% of the subset group) over the decade, which was only better than utilities and energy. The real estate industry was the second biggest underperformer when compared to its representation versus the broader market (7.1% of total market listings).

There are reasons for this. REITs, which represents 35% of all real estates listing, are not suited for capital appreciation purposes but rather income generation. To maintain a REIT status, companies must pay at least 90% of their taxable income to shareholders, making reinvestment opportunities and capital appreciation goals a lot more difficult and there were no traditional REITs in the subset group.

We broadly classify the real estate industry into four segments;

- REITs (residential, non-residential and diversified)
- Real estate operating companies (residential and non-residential operators and lessors)
- Real estate development (developers, cemetery subdividers and land subdividers)
- Real estate services (agents, brokers, appraisers, title services and condominium associations)

The real estate industry was quite skewed as every company came from just the operating (9 companies) and development (4 companies) segment. In the development segment, each had very different focus areas. Lifestyle Communities Limited focused on affordable homes for retired Australians across its 18 communities. Phat Dat Real Estate, on the other hand, focused on luxury apartments in Vietnam. We reviewed the investment case in Phat Dat and explored how asset value calculations play a significant role in real estate investing.

The companies were dominated by four Israeli operators in the real estate operating companies segment. Over the past decade, Israel's real estate prices increased the most globally (346%), and the asset value of many operators increased as a result. Both Prashkovsky and Y.H. Dimri focused more on luxury apartments and benefitted from the robust demand for holiday reserves in resort cities like Netanya, Israel.

There were also attractive operators in the non-residential segment. Argan was a beneficiary of the transformation the e-commerce industry has had on premium logistics centres in France and counts Carrefour and L'Oreal as some of its many customers. In self-storage, the demand for space in North America was more resilient than the broader real estate asset class during the decade. StorageVault, the continent's best-performing real estate stock, now has 238 storage locations with 11.2 million rentable square feet.

Some of these non-residential segments, like logistics, will likely become more correlated with the broader economy, given the increased demand and integration with the retail industry and, thus, consumer spending. However, logistics operators like Argan in France and Mega Or Holdings in Israel proved they were skilled acquirers and logistics warehouse developers, and we reviewed Argan's investment case.

Phat Dat Real Estate - Growth in Vietnam's real estate

Return: 1,291%

Phat Dat Real Estate (PDR) is a Vietnamese real estate group that invests in and develops real estate projects in the high-end segment, primarily in Ho Chi Minh City (HCMC) housing, apartments and resorts. The group was founded by its current chairman, Nguyen Van Dat, in 2004 after years of experience trading goods in HCMC, Vietnam.

PDR's first independent project commenced in 2006 with the EverRich 1 in District 11, HCMC and was completed in 2009. The EverRich 1 was an apartment project with a construction area of 85,645 m² and housed 300 apartments across two adjacent buildings of 20 floors each (5 floors reserved for commercial services). The EverRich project benefitted from its location and proximity to the Tan Son That Airport, the busiest airport in Vietnam and was ideal for the upper class in HCMC. Driven by this success, follow-up projects such as the EverRich 2 and EverRich 3 commenced and were completed in 2014 and 2016, respectively. EverRich 2 had a total area of 112,585 m² for 3,125 apartments.

Images: The EverRich project in HCMC (left) and the Phat Dat Bau Ca residential area in Quang Nai City (right). (company website)

Beyond the EverRich projects, PDR has invested in and developed residential projects like Phat Dat Bau Ca, its first project beyond HCMC. Its two main current projects include the Nhon Hoi Ecotourism City, an 800,000 m² (land area) residential and mixed-use apartment area, and Astral City, a 320,000 m² apartment and office space project in the Binh Duong province, HCMC. PDR also occasionally engage and develop projects with PPP structures, such as the Phan Dinh Phung Sports Center in HCMC.

Investment Case

Vietnam

Vietnam has seen rapid demographic and social change over the past two decades. Its GDP grew from $31 billion in 2000 to $271 billion in 2020 as it shifted from a centralised economy to a mixed economy. Its population living under $5.5 per day has steadily declined over the years. FDI has seen strong inflows, and rapid urbanisation has been supported by the promotion of industrialisation and the creation of job opportunities.

These factors, coupled with tourism growth mainly from the Chinese and South Korean tourists, and the relaxation in foreign home ownership policy, have boosted its real estate sector. In HCMC, apartment prices increased by 90% between 2017 and 2020 due to high demand from Vietnamese citizens and foreign investors (foreigners are allowed to own up to 30% of total units in new apartment developments).

PDR

Developers generally take the highest risk and receive the most significant rewards in real estate, which explains why some of the best performers within real estates were developers like PDR. PDR's developer model is also slightly riskier within the developer spectrum as they focus on complex apartments with high-end structures and a concentrated portfolio of projects. The capital requirements are also higher, and rewards see a lengthier lag time, typically only after completion. In 2011, revenues plummeted by 92%, while operating earnings fell into losses and remained subdued until 2014, after the completion of the EverRich 2 project.

These periods of lower revenues but robust project pipelines are typically the most favourable times to examine the investment cases of real estate developers because many market participants project current financials and disregard looking into the quality and potential of ongoing projects from a future earnings and valuation view. By 2016, PDR's market capitalisation had fallen to VND 2.5 trillion, 70% below its IPO peak despite the inventory value of VND 4.7 trillion from just the EverRich 2 project alone (62% of total inventory value in 2016). With a total of 3,125 apartments, we estimate the average flat may have fetched between VND 3-3.5 billion per flat.

PDR paid down its debt and maintained a debt-free balance sheet over the following two years with profits generated from the EverRich 3 project. Guided by its strict reinvestment policy, which we believe is vital for successful developers, PDR took on some debt to bid at auctions for the current pipeline of projects like Ecotourism City and Bac Ha Thanh.

Although debt levels were sometimes high over the ten years, PDR showed fairly good capital allocation. They only relied on the issuance of new shares twice, in 2015 (VND 650 billion) and 2021 (VND 1.16 trillion). Dividends were also only paid twice, with most earnings used to finance interest payments to bondholders or reinvested into new projects that could earn a higher return on capital for shareholders. In more recent years, PDR has diversified into more projects with the purchase of land banks beyond HCMC into second-tier cities in Vietnam like Da Nang, Quang Ngai and Binh Dinh.

These new projects and diversification have paid off, and PDR earned an operating earnings + investment income of VND 2.6 trillion, a value greater than its market capitalisation in 2016.

Lesson

PDR, like many concentrated developers, are always tricky to value given the cyclicality of earnings and dependence on big projects, making past financial data almost useless in valuations. Its most times more essential to understand the potential demand for future inventory and projects in developments and the possible macro and micro risks involved, such as low occupancy rates in low-density regions, projected apartment sale prices and occupancy rate projections. These broader factors were important for PDR because Vietnam's wider economy and investor and home ownership demand in its core cities, such as HCMC, was robust.

Investors also need to ask qualitative questions about management, such as; do they have a track record of executing similar projects? Are they getting quality deals with a high investment return, including in auction-based contracts? Are their minority stakes paying off? Is the performance and execution in line with management ambitions?

The best investment opportunity in PDR came in 2014 after the EverRich 2 project was completed and handed to residents. By then, it was already clear that the EverRich 2 was a success, and PDR would be able to profit from the project and invest in other ongoing projects such as the EverRich 3. Despite this, its share price was mute for years, with the P/BV falling below 1x.

Lastly, for non-real estate specialists, reviewing the quality of projects of this complex scale may sometimes be difficult, but alternative data such as industry blogs and awards can make this much more accessible. PDR's projects were rated highly and awarded by various groups like the Vietnam Property Awards, Top 10 Developers by BCI Asia and Vietnam Global Bank & Finance.

Argan SA - A market leader in logistics real estate

Return: 1,044%

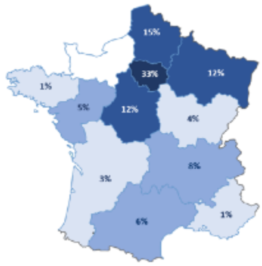
Argan is a French real estate company specialising in developing and renting premium warehouses predominantly for major French companies. The real estate group was founded in 1993 by its current chairman, Jen-Claude Le Lan, whose family has a 40.3% stake in the company. Argan currently owns a portfolio of 90 warehouses - 75 logistics hubs and 12 fulfilment centres with a total surface area of 3,265,000 m². 33% of total assets are within the Ile de France region, the most populous region in France. Argan is an integrated player that works throughout the development stage from land search to construction and also collects rental income from its clients.

Argan mainly serves consumer brands that own the goods stored (77% of clients) like Carrefour, L'Oreal, Casino and logistics specialists (23% of clients) like DHL, FM logistic, and GXO Logistics, which may be single-client or multi-client in nature. It currently has a 99% occupancy rate with an average fixed lease term of 5.9 years. Its top three clients Carrefour (31%), FM logistic (8%) and Casino (7%), represent 46% of annual rental income, while its top 12 clients represent 77% of annual rental income.

Investment Case

The French logistics real estate market has attracted global real estate operators in recent years, from Logicor, Europe's leading developer of logistics real estate with over 13.7 million m² of warehouse space, to the US Prologis REITs, who now operate warehouse and distribution centres in cities like Paris, Marseille and Lille. One of the biggest drivers for this has been the rise of e-commerce, a market where France is currently Europe's second-largest market, led by its many fashion houses and brands. The rise of e-commerce has increased the demand for specialised premium warehouses due to the need for agility and speed with inventory management.

Among all 13 companies from the real estate subset, Argan was the only specialised logistics group to have returned more than 1,000% over the past ten years and two key reasons have contributed to its outperformance.



Images: A third of Argan's projects are within the Ile de France region (Paris) which supports its clients concentrated here like L'Oreal and Carrefour (right). (annual report)

First, Argan controls the entire value chain from the design of warehouse properties to rental management, which is slightly different from many other players. The value chain control allows Argan to provide premium and tailored warehouses per client specifications and needs. Warehouses have become much more technical, and building a big square box does not cut it for top clients anymore. Various factors affect the profitability of warehouses, from location and proximity to end customers, safety and regulation scope, size, quality and innovation within facilities and rental policy. These are all things Argan understood well and are central to its strategy of delivering premium warehouses to its customers like Carrefour and L'Oréal.

Second, its operational track record, focus and scale make Argan a top choice for clients, which provides more negotiation power during rental negotiations. Argan solely focuses on logistics warehouses, and a third of its warehouse locations are in the Ile de France region (Paris), the most crucial French region for consumer-oriented clients. The group also operates various warehouses in other areas within France, increasing its potential offerings to clients wanting to work with a limited number of landlords. Customers like Carrefour, FM Logistics, Geodis, Auchan and L'Oreal each rent more than three warehouse sites from Argan, and we believe the trend of companies sticking with leading operators is likely to increase over the future.

Annual rental income has grown from €44 million in 2011 to €157 million in 2021 (13.6% CAGR) over the decade. Its (net asset value) NAV also grew from €195 million to €2,070 million during the same period (26.6% CAGR). Its balance sheet was also de-leveraged, and debt/NAV fell from 2.58x to 1.07x as profits grew.

Lesson

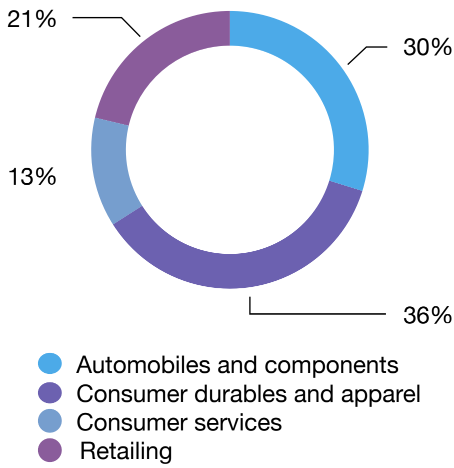
There are two key areas to assess when analysing non-residential real estate companies. First is the discount or premium to NAV and also the potential growth in NAV. We want to invest when there is a significant discount to the NAV and when there's potential for NAV growth over time. Although Argan's NAV was a steady grower, the best periods were during steeper discounts between its market capitalisation and NAV. In 2009, its market capitalisation had reached a -53% discount to NAV, and its share price doubled within the following two years. In late 2012, the discount to NAV again increased, and its share price similarly doubled within the next couple of years.

From a NAV growth view, investors need to assess the quality of its asset class, client type, management capital allocation and growth strategy. Argan took a concentrated and premium model and focused on growing its NAV over the years by focusing on high-quality relationships and delivering its premium warehouses according to client needs. This focus on high-quality relationships proved well, as retailer clients like Carrefour selected Argan as their sale and leaseback partner in 2019. This, coupled with industry tailwinds, increased the demand for sale-leaseback deals among retailers such as Carrefour, and fulfilment centres by e-commerce enabled companies further boosted Argan's growth over the decade.

Consumer Discretionary

Outperformers: 47 companies

The consumer discretionary industry represented 11.3% of all listed companies and was 10.5% (47 companies) of the subset group, thus, just slightly underperforming. Consumer discretionary tends to be one of the more popular sectors given the scale of recent success stories like Amazon, Tesla, and MercadoLibre. The investing school of "buy what you know" means many retail investors gravitate toward these companies, given the role consumer products play in society.



There are four consumer discretionary sub-segments;

- Consumer durables and apparel (17 companies)
- Automobiles and auto components (14 companies)
- Retailing (10 companies)
- Consumer services (6 companies)

The consumer durables and apparel segment produced the most companies, with 17 companies. The segment was dominated mainly by Asian companies, with India alone representing nine companies. The Indian consumer companies benefitted from the 83% rise in Indian per capita spending during the decade as its economy grew rapidly. Take KPR Mill Limited Limited, the best performer in the segment with a return of 7,271%. KPR Mill capitalised on the growth in Indian disposable income as it expanded into developing its own relatively premium brands like FASO in underwear and athleisure products.

Beyond India, there was a diverse range of consumer durables companies. In Israel, Maytronics patented automated swimming pool sensors boosted its market share and profitability as its earnings compounded by 24% over the decade. There were a few turnarounds too. Sony Group, the Japanese conglomerate, was the biggest surprise in the subset list. Its shares had declined by -80% in the years leading into 2012 as its consumer electronics and gaming division struggled. Another turnaround was Games Workshop, the only non-Asian company within this segment, which provided an excellent case study of how management can unlock value when bureaucracy is cut and have their ear closer to the core customers.

The second segment was automobiles and auto components, with 14 outperformers. Again, India led this segment, with nine of the 14 companies. These companies had benefitted from the increased outsourcing of automotive manufacturing to India. In tires, there was Balkrishna Industries. In auto lighting, we had Minda Industries, and in precision components, there was Sundram Fasteners. Outside India, two companies particularly stood out, BYD Motors and Tesla. We explored Tesla and the rise of electric vehicles in our case study below.

In consumer retailing, there were ten outperformers led by retail conglomerates like Amazon and MercadoLibre. One would have thought more opportunities came from online retailers, but we were surprised to see both Amazon and MercadoLibre among the least performers within the subset list and a more significant share of physical retailers than pure-play online retailers. Geographically, retailing was more diversified than other consumer segments. In China, there was China Tourism Group which operates duty-free shops in Chinese airports. In the UK, we had JD Sports, one of the leaders in sports apparel retailing. JD Sports performance was a mixture of valuations and growth; earnings compounded by 31% over the decade while its multiples traded at 3.89x EV/EBIT in 2012.

Japan was not left out, and here, Nojima Corporation, a home appliances and electronics retailer with over 250+ stores across Japan and, more recently, in Southeast Asia, benefitted from its low valuations and acquisition of ITX Group. Nojima's shareholders paid just 0.07x EV/Revenue (4.64x PE ratio) in 2012 for shares.

Finally, the consumer services segment, where hotels, restaurants and other leisure businesses sit, had the smallest subset representation with just six companies. These business models are often more susceptible to economic shocks and recessions and have lower-end margins due to their asset-heavy real estate and the CAPEX needed for operations. One of the two restaurants on the subset list, Create restaurants holdings, a Japanese operator of Izakaya bars, ramen and food court brands, realised it couldn't adopt the same model as other Japanese major operators and then grew via a "multi-brand and multi-location" model. Create restaurants prioritised bringing "the brand to the location" rather than the "location to the brand", which boosted physical sales and allowed the group to centralise and manage its costs better than peers across its 900+ outlets. This strategy worked well for Create restaurants as it compounded its earnings by 16% between 2011-2019.

The more attractive consumer services companies were in less cyclical areas like gambling and live casinos, and here, the Australian operators, Aristocrat Leisure and Jumbo Interactive dominated the segment.

We explore two consumer discretionary case studies, ANTA Sports in the Chinese sports apparel market and Tesla's leadership in electric vehicles.

Case Study

ANTA Sports - The Chinese leader in sports apparel

Return: 1,307%

The western world is mainly aware of the domination of sports apparel brands like Nike and Adidas, but in China, a few Chinese brands are giving both brands a run for their money. One of them is ANTA Sports, the world's third largest sports apparel brand.

ANTA Sports was founded by its current chairman and CEO, Ding Shizhong, in early 1991. Beyond the ANTA brand, ANTA Sports owns other brands, including the Chinese franchise of FILA and FILA KIDS, Descente, and the outdoor brand Kolon Sports, among others. ANTA started by manufacturing products for other brands that wanted to produce shoes in China. As ANTA gained experience in branding and the overall process, they stopped making shoes for other brands, and by 2001, ANTA had expanded beyond shoes into a comprehensive sportswear and apparel brand. After its IPO in 2007, ANTA acquired FILA from BeLLE in 2009 and later expanded into more FILA divisions, such as FILA KIDS in 2015 and FILA FUSION in 2018.

FILA now represents 44% of the group's total sales, while ANTA represents 49% of total sales. Other brands, such as Descente, make up the rest. ANTA employs an omnichannel strategy with direct-to-consumer (36% of revenue), e-commerce (34% of revenue) and traditional wholesale (30% of revenue) in 2021. Although ANTA (9,403 stores) is larger from a sales view, FILA (2,054 stores) generates more profits for the group due to its higher pricing points.

Its top brand ambassadors are homegrown Olympians like Lü Xiaojun, Wu Dajing, and Eileen Gu and international NBA stars like Klay Thompson and Gordon Hayward. FILA also has ambassadors beyond sports, like Chinese actors like Huang Jingyu and Cai Xukun.

Investment Case

The Chinese growth story has been central to ANTA's achievement. Decades of rapid economic growth lifted over 750 million from extreme poverty, and as incomes grew, Chinese consumer spending on goods and services increased.

Images: ANTA makes most of its money from its ANTA stores (left) and FILA (right) brand. (annual report)

China's product competitiveness also improved during the period, and consumer industries that had heavily relied on importation began seeing homegrown entrepreneurs develop competitive goods and services to take on their foreign rivals.

Today, ANTA Sports has the same market capitalisation as Adidas $30 billion. Although ANTA commands one of the industry-leading growth and profitability profiles, its financials have not always been as great. The problems started after the 2008 summer Olympics in China when many mass-market brands were operating and discounting prices to dominate the sportswear segment. ANTA, having just acquired the Chinese operations of FILA in 2009, grew its number of stores too quickly, which led to significant discounts on items to manage the retail inventory. Over 600 stores were later closed, and operating earnings fell by -22% between 2011 and 2013, ending 2013 with an operating profit margin of 20.5%, a four-year low.

Management soon launched a turnaround plan, and by 2014, ANTA was the first local brand to see positive results in its revenue and profits growth. ANTA's position in brand prestige is less than some Chinese peers, like Li Ning and western brands like Nike and Adidas. ANTA has mainly focused on dominating the mass-market segment in China, primarily targeting the lower-middle class. That said, recent basketball lines such as its KT line and its women's GT line seem to be upscaling in recent years.

E-commerce has been more ingrained in ANTA's operations than in its western counterparts. E-commerce via platforms like JD, T-mall and Pinduoduo and its e-commerce stores now account for 34% of ANTA sales and has allowed them to gain a cost advantage, especially in Chinese tier 1 cities. This also proved vital in 2020 as ANTA was one of the few sportswear and apparel that managed to grow revenue and gross profits despite the pandemic effects. Adidas, for example, saw its revenue and operating profits fall by -22% and -72%, respectively.

Over the past ten years, revenue and operating profits have compounded by 18% while maintaining EBIT margins of at least 20% during the decade. In 2012, ANTA Sports shares traded at just 0.6x EV/Revenue (2.5x EV/EBIT) and is now valued at 4.3x EV/Revenue (17.1x EV/EBIT) in 2022.

Lesson

A significant percentage of the opportunities we assessed in the consumer discretionary industry were during actual fundamental problems. Only one company in the consumer durables and apparel segment grew revenues greater than 20%, indicating some outperformance came from multiple expansions. It is easy to look back in hindsight and claim one would have invested, but the reality is much more difficult given the headlines and negativity one may see on the news.

After studying these consumer brands like Sony and ANTA Sports, we have identified some mental models to support these consumer turnaround frameworks. The goal here as an investor is to ensure the turnaround is easy to achieve. So what makes an easy turnaround?

1. The underlying company is still profitable even during fundamental problems, and its debt relative to cash, assets and earnings is not in excess.
2. Key rivals are also struggling and may thus indicate an industry-wide problem.
3. In cases where the brand value or prestige is damaged, the damage is less when compared to peers.
4. Management is aware of the problems and has identified an actionable plan to solve the issues.
5. The shares are incredibly cheap when compared to their price before operational issues.

Before the early 2010s issues, ANTA sports had compounded its revenue and operating profits by 48% and 68% CAGR, respectively. Its shares fell by -75% even though it achieved an operating profit margin of 20%, far higher than loss-making peers like Li Ning (Li Ning had a loss margin of -30% during that period). International peers like Nike and Adidas similarly struggled with growth during this period and had lower margins. Being profitable while owning an attractive asset like FILA China gave ANTA more potential for growth during the industry recovery.

ANTA was also debt-free, and a third of its market capitalisation was in cash before the issues, unlike peers like Li Ning, which gave its management the financial flexibility to cut stores and stomach the effects of short-term problems. With relative multiples reaching a low of 5x PE ratio or 2.5x EV/EBIT and a TAM as big as the growing Chinese consumer market, ANTA Sports certainly met all five parameters to look for in a consumer turnaround opportunity.

¥ m	2008	2009	2010	2011	2012	2013
Revenue	4,627	5,875	7,408	8,905	7,623	7,281
Cost Of Goods Sold	2,778	3,402	4,238	5,142	4,730	4,242
Gross Profit	1,849	2,473	3,171	3,762	2,893	3,039
Op costs	918	1,078	1,433	1,750	1,331	1,471
EBIT	931	1,395	1,738	2,012	**1,562**	1,568
EV/EBIT	28.94x	14.20x	18.07x	10.97x	**4.62x**	8.70x
EBIT Margin %	20.1%	23.7%	23.5%	22.6%	**20.5%**	21.5%
Net Income Margin %	19.3%	21.3%	20.9%	19.4%	17.8%	18.1%

ANTA Sports struggled in 2012, but investors who checked competitors like Li Ning's income statements would have noticed ANTA was in an even better position despite the struggles.

ANTA Sports valuation averaged just 4.6x EV/EBIT in 2012. This was a gift for shareholders!

Tesla - Lessons on unprofitable growth

Return: 12,752%

Tesla was founded in 2003 by Martin Eberhard and Marc Tarpenning, and in 2004, Elon Musk, its current CEO, joined as a shareholder before taking the leadership role in 2008. Its core business is focused on manufacturing and selling electric vehicles, while supplementary business segments include energy storage solutions. Tesla became the first commercially viable electric vehicle with its Tesla Roadster, and by the end of 2012, it had shipped 2,450 Tesla roadsters. Tesla also made its patented powertrain components for other automobile groups like Daimler AG and Toyota. Manufacturing was predominantly in North America (it acquired its Tesla Factory from Toyota), and its production ramped up over the following years with the Model S and Model X.


Images: Tesla started with the luxury Tesla Roadster and then moved into the mass-market auto segments which provide more scale.

In 2015, Tesla entered the energy storage market after unveiling its Powerwall and Powerpack battery packs. 2019 saw the opening of its gigafactory in China, and Tesla also acquired several smaller companies to bolster its expertise in automation. There are now three more gigafactories (two in the US and one in Germany), accelerating the production of all five Tesla models.

Investment Case

Tesla was among the three largest companies in the overall subset by market capitalisation and was also the tenth best-performing company over the decade. Among the companies we assessed, Tesla was the trickiest to have valued. First, Tesla was unprofitable every year from 2008 until 2018, amassing -$4.6 billion in operating losses. This was very different from other case studies where profitability was present even in lower-margin industries like airlines. Only four operating companies showed consecutive years of unprofitability between 2012 and 2018. Second, when it finally became profitable in 2019, the market quickly realised this as its share price gained more than 690% in a year.

In hindsight, Tesla was the perfect investment over the past decade, but even after studying its past financials and annual reports, it was difficult for us to pinpoint an exact period when Tesla looked like a long-term winner. In 2012, debt levels were extremely high (78% debt/capital), and in 2015 growth slowed, losses piled up (-18% EBIT margin), and the company was again on the brink of bankruptcy. In 2019, another period its share price aggressively fell, its model 3 had production problems, and financials were again at significant risk.

Lesson - Finding value in loss making companies

Today, the private market appetite for companies of Tesla's business economics (pre-2019), where profitability is massively sacrificed for long-term growth, has dramatically increased. It's irrelevant for us to debate if this strategy will last forever because it's clear that wonderful businesses like Amazon and Tesla can similarly be created with this model of sacrificing profitability for growth. But for every success story of this nature, tens of companies fail, and it's vital we explore why some like Tesla succeeded. Our goal here is to increase our chances of success by asking the right questions when analysing companies. For these high-growth and unprofitable companies like Tesla pre-2019, we created a seven-step questionnaire that could direct you into making a better investment decision.

1. Who else serves their purpose to society? Why is this purpose relevant?
2. What special sauce or innovation do they have over incumbents and other startups?
3. Why would their secret sauce result in better margins and a larger market share than their peers?
4. Is the core product addressable market big enough?
5. Can future growth be explosive?
6. Why is the current management the right group to challenge incumbents and provide this service or product?

7. If 1-6 have positive answers, apply the profit margins of incumbents. Is the valuations justified?

Question 1

Tesla's purpose for society is to accelerate the transport industry's transition to sustainable energy. There are two areas here; transportation and sustainable energy. In 2012, there were hundreds of established automotive companies, but none were creating electric vehicles at a commercially viable scale until the Tesla roadster. The transport industry represents around 30% of global carbon emissions, and road transport alone represents 72% of transportation emissions, so it was clear Tesla's purpose could potentially create enormous value for society and also receive the backing of many stakeholders like governments via subsidies or engineers eager to solve a big problem for civilisation. Had Tesla's purpose been a product or service with substantial negative externalities like smoking or alcohol, it's unlikely we would have witnessed such government or private funding support that assisted the company during the difficult years.

Question 2 and 3

To understand the secret sauce of a consumer brand, investors need to assess it from two angles; the customer lens and the competitor lens. For the consumer, Tesla pretty much established and led a new category in the automotive sector. By 2015, BMW, Daimler, Ford and Nissan followed suit and entered the EV market, while others like Toyota and Ford commenced their hybrid versions. These moves meant the first mover advantage was insufficient to guarantee future success. From a competitor lens, mass-market electric vehicles need to achieve;

- long range and recharging flexibility
- energy efficiency
- cost-effectiveness relative to car quality
- high performance without compromising on design or functionality.

Tesla's Model S in 2013 was very competitive compared to combustion vehicles. Before the Model S, Daimler and Toyota (RAV4 EV) had incorporated Tesla's electric powertrain due to its competitiveness. From a functionality and design view, the Model S prioritised storage space; 31 cubic feet, versus the BMW 5 series, 14 cubic feet. The Model S also had premium luxury features like a touch screen driver interface, wireless connectivity, and customisable infotainment, further differentiating it from its peers.

Tesla's process with sales and marketing was also quite different. Tesla historically utilised word of mouth more than expensive advertising campaigns like other auto companies did. They didn't sell cars through dealerships, which improved its potential unit economics and its relationship and contact with the end consumer. Initially, this didn't seem like an advantage but the rise of the internet and social media made the direct-to-consumer relationship a lot easier for consumer brands to manage.

Question 4 and 5

The initial Tesla roadster competing in the luxury market had a much smaller addressable market, and the market dynamics would have made competing there much more complicated than mass-market. The transition to mass-market with the arrival of the Model S in 2012 not only provided the TAM scale but also allowed Tesla to compete more on its other strengths from its direct-to-consumer strategy, functionality, and performance advantage made for the everyday auto consumer. In 2014, 90 million vehicles were produced globally (4.2 million in the USA), and Tesla had only delivered 57,000 of its Model S, just 1.3% of the USA market share. Had this market share been 10%, Tesla's growth potential would be much less, making its future potential much less attractive.

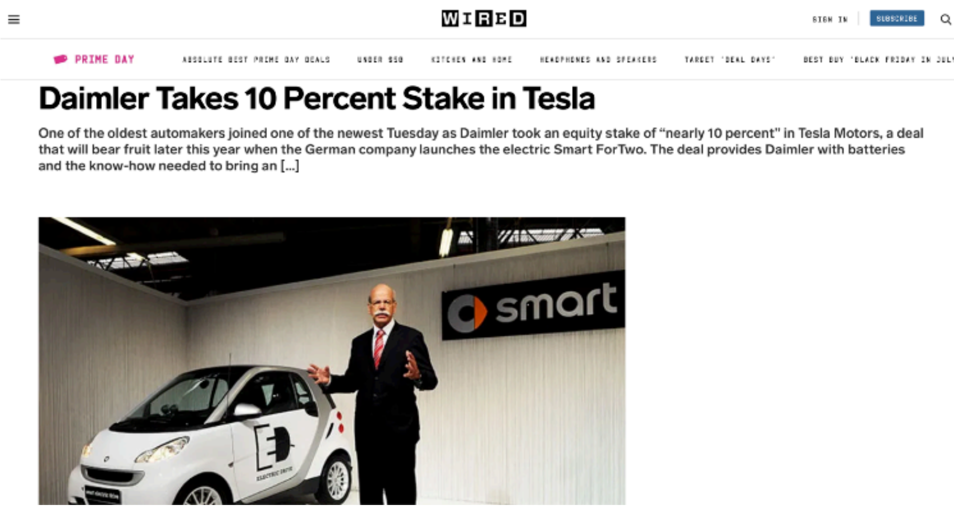
Another factor that contributed to Tesla's success is its global reach, even from the earlier years. By 2014, sales outside the US had already reached 54% of total revenue, thanks to strong demand and favourable electric vehicle policies in European countries like Norway, the Netherlands, and China. The Model S was also the first electric vehicle in Norway to top monthly car sales charts. With Tesla's factory additions in Germany and China, we can only expect its international sales to play an even more influential role on its bottom line.

Question 6

Many books and articles have been published about Tesla's CEO, but understanding if the management is the right fit goes beyond just the CEO, and leading indicators like operational progress and engineering and technical prowess come in handy here. Tesla had even attracted Daimler to purchase a 10% stake in the EV maker, and many executives from rivals like Aston Martin and Ford had moved to Tesla during the early production days.

Question 7

Assuming one thought Tesla could survive and applied the average 7.5% profit margin an auto manufacturer makes, this would have put Tesla's EV/EBIT in 2018 at 29x. For a company growing 50% per year, this did not seem too crazy, given the advantages it created from its technology to brand power and sales process were becoming clear. Today, Tesla's margins are much higher than its peers (EBIT margin of 12% achieved in 2021), and investors in 2012 have achieved a return of 12,752% (62.5% CAGR) over the decade. Sometimes, outperformers require one to look beyond the near-term financials and focus more on the story and potential.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Daimler Takes 10 Percent Stake in Tesla

One of the oldest automakers joined one of the newest Tuesday as Daimler took an equity stake of "nearly 10 percent" in Tesla Motors, a deal that will bear fruit later this year when the German company launches the electric Smart ForTwo. The deal provides Daimler with batteries and the know-how needed to bring an [...]

$ m	2015	2016	2017	2018	2019	2020	2021
Revenue	**4,046**	7,000	11,759	21,461	24,578	31,536	**53,823**
Cost Of Goods Sold	3,123	5,401	9,536	17,419	20,509	24,906	40,217
Gross Profit	924	1,599	2,223	4,042	4,069	6,630	13,606
Op costs	1,640	2,245	3,855	4,295	3,989	4,679	7,083
EBIT	**(717)**	(646)	(1,632)	(253)	80	1,951	**6,523**
EV/ Revenue	8.80x	6.99x	6.83x	4.96x	**2.63x**	10.54x	20.08x
EBIT Margin %	(17.7%)	(9.2%)	(13.9%)	(1.2%)	0.3%	6.2%	12.1%

In hindsight, Tesla was undervalued in 2015 when its market cap was valued at around $35 billion. Tesla later made more in operating profits in 2021 than its 2015 revenue as shareholders paid just 5x its 6-year actual forward earnings.

For companies like Tesla, its more helpful to focus on the seven-step questionnaire guide to understand the potential for growth and long-term profitability.

Consumer Staples

Outperformers: 21 companies

The consumer staples industry produced 21 outperformers (4.7% of the subset list), underperforming its market representation of 6.5%. This contrasted with the 2002-2012 decade when consumer staples represented 13.3% of the 300 outperformers. One of the reasons behind this contrast was the financial crisis. Staples are more defensive, less cyclical, and represent necessities like groceries, food and beverages, and household products. These made the industry more resilient during the financial crisis; in 2008, the MSCI World Consumer Staples Index fell by -23% versus the -42% decline in the MSCI World Consumer Discretionary Index. This also impacts the potential recovery; staples had less to recover from in comparison to discretionary, thus reducing the sector's potential upside during the following decade.

We break down the consumer staples industry into three segments;

- Food, beverage and tobacco (19 companies)
- Food and staples retailing (1 company)
- Household and personal products (1 company)

Food, beverage and tobacco staples represent 69% of consumer staples which partially explains why it also dominates the outperformers subset. Like in consumer discretionary, India had a significant role in the subset list as seven of the 19 companies came from the country. It may be tempting to tie this success down to India's large and growing market, but the investment cases were primarily company-specific, driven by turnarounds and management strategy decisions.

Take Gujarat Ambuja Exports Limited, the Indian agro processor of cotton yarn, maize, and glucose syrup. Gujarat Ambuja shifted its focus from oil seed extraction to corn processing and also moved into derivative products that offered higher margins, like dextrose anhydrate, a maize derivative used in pharmaceutical nutrient enhancers. This, alongside the modernization of plants in Gujarat and Maharashtra, improved its operating margins and business growth- operating margins expanded from 4% to 13%, while debt/capital decreased from 40% to 9% over the decade. In our case study, we explore how another Indian consumer staple, Britannia Industries, India's largest biscuits maker, turned its business around as it regained its market leadership in India's confectionary industry.

Another segment that dominated the food, beverage and tobacco segment were the Nordic salmon companies. Two factors fuelled its outperformance. First, the price of salmon nose-dived in 2011 due to the market oversupply, thus impacting profits and weakening their balance sheets. All four salmon outperformers saw their share prices decline by more than 50% during the industry downturn which meant the salmon producers started the decade with low valuations. The other reason for their outperformance has been the growth of salmon due to the increased awareness of its health benefits relative to other meat sources, and we explore how SalMar took advantage of this as it aggressively expanded its operations during the decade.

The two companies in the other segments, food and staples retailing and household and personal products, were diversified Japanese groups, RIZAP Group, a conglomerate in the beauty and apparel industry and Kobe Bussan, the operator of Kobe Cook, Japan's largest buffet chain and Gyomu Super, one of the country's most loved low-cost supermarkets with over 900 stores. Their valuations were very depressed in 2012 because markets panicked about Japan's economic growth, falling birth rates and ageing population spending on consumer products. Kobe Bussan, for example, had an EV/EBIT multiple of just 2.4x and an EV/Revenue of 0.06x. Kobe compounded its earnings by 21% and returned 4,466% over the decade. When growth, value and excessive market pessimism meet, great returns are created!

SalMar - Cost leadership in Norwegian Salmon

Return: 2,300%

SalMar is an integrated producer of farmed salmon and was founded in 1991 by its current chairman, Gustav Witzøe. After acquiring struggling peers licenses, SalMar expanded its operations into different areas, such as fish meal and herring oil. Today, the group focuses on just salmon farming via its three core operational regions in central Norway, northern Norway and Iceland. They also own Scottish Sea Farms in partnership with Lerøy Seafood and export salmon to over 50 countries with over 198,000 tonnes in harvested volume.

There are various species of salmon fish, but the most commercially available is the Atlantic salmon, and salmon farming only became an industry in the 1980s in Norway and in the 1990s in Chile. Both countries dominate farmed salmon production with a 53% and 25% global market share, respectively. Salmon requires cold and stable sea temperatures and optimal biological conditions. These high geographical and aquatic barriers mean salmon farming is limited to only specific regions, preventing potential large scale entrants.

Demand for salmon has risen over the years due to the healthy protein-rich content in salmon, but supply largely depends on the efficiency and operational conditions of companies like SalMar. While 25% of SalMar's sales are in fixed-price contracts, the majority is subject to salmon's market price, which may fluctuate depending on demand and supply imbalances. Hence, we can refer to the salmon industry as a commodity consumer staple.

Investment Case

It was surprising to see four salmon outperformers, so it's crucial we understand why the sector did so well during the decade. First, the salmon farmers are price takers and compete mainly on quantity and cost management. Producers try to control their whole value chain from the incubation of broodstock eggs to the harvesting, processing and sales stage. While not obvious, innovation is a huge driver to cost competitiveness, and an example is the offshore farming technique SalMar established in 2018, which automates the salmon catching to breeding process with minimal continuous labour input.

Salmon producers face new crisis

October 27, 2011

Prices for Norwegian salmon have taken a huge dive while inventory at seafood producers is piling up. On Thursday, another major fish farming company reported "disappointing" results as salmon producers, hit by declining demand in key markets, feel like they're swimming upstream.

Bergen-based Marine Harvest, the largest producer of farmed salmon in the world, reported pre-tax earnings of NOK 457 (USD 83 million) million

Images: SalMar built the first offshore salmon farm (left) to drive additional cost efficiencies. (company website)

During downturns, commentators voice doom and gloom as they did during the salmon downturn in 2011 (right). This is usually the most attractive time to invest.

Going back to 2011, prices of Atlantic salmon fell from an April peak of 44 NOK per kg to its trough of 18 NOK per kg, driven by the market oversupply. During these periods in commodity and cyclical industries, the best operators become stronger while the weaker operators become weaker, so the first step is to compare the performance of all salmon farmers. Compared to its rivals in 2010, SalMar had the third best operating margin (33.8%) among all 39 salmon producers. Peers like Austevoll Seafood had margins less than half of SalMar's during the same year. Management attributed their industry-leading margins to their focused cost-management strategy and their global sales process and reach. Although SalMar's revenue still grew, unlike peers like Mowi and Grieg Seafood, its earnings declined by 79% with an operating margin of 7% in 2012. This was still among the top ten of 39 producers.

As prices declined, producers rationalised supply and prices then stabilised within the next year. Over the following years, SalMar made many investments in current operations and via acquisitions. SalMar upgraded plants like the InnovaMar facility, a 17,500 m² harvesting and processing plant with a capacity of 150,000 tonnes of salmon. Ten more licenses were acquired in northern Norway, at a purchase price of NOK 110 million. SalMar also acquired stakes in smaller integrated farms like Villa Organic AS, and by 2015, SalMar's annual harvested volume had increased by 50%. At the industry level, the prices of salmon improved as demand and export opportunities increased. Unlike other meats like chicken and beef, the geographic barriers to entry in salmon keep the industry margins much more attractive.

Overall, SalMar's revenue and operating profits compounded by 16.3% and 54.5% annualised, respectively, generating an operating margin of 24.6% in 2021. After the 2011-2012 downturn, SalMar's margins didn’t fall below 20%, and as its position within the industry increased, multiples expanded from 1.6x EV/Revenue (17.6x EV/EBIT) in 2012 to 5.45x EV/Revenue (20.2x EV/EBIT) in 2022.

Lesson

Like many outperformers in the consumer staples industry, the investment opportunity was born during a period of fundamental issues and negative market sentiment. For SalMar, its problems were not company specific but rather due to the market price for Atlantic salmon. To separate company-specific from industry issues, you need to compare the financials and operations across the whole industry and differentiate the weaker companies from the stronger ones. Had you done this with SalMar, it would have been clear that its management, cost discipline, and allocation track record were superior to its peers.

The natural barriers to entry also support established players in the salmon industry, which explains why the whole industry recovered and four producers featured among the outperformers. Even in commodity and cyclical industries, moats are important too, and you want to focus on sectors that companies can't easily expand into during good times and favourable prices.

Kr m	2010	2011	2012	2013	2014	2015	2016
Revenue	3,429	3,834	4,205	6,246	7,175	7,304	9,003
Cost Of Goods Sold	1,413	2,460	2,168	2,658	3,416	3,624	3,187
Gross Profit	2,016	1,373	2,037	3,588	3,759	3,679	5,817
Op. costs	857	1,135	1,405	1,796	1,947	2,206	2,675
EBIT	1,159	238	632	1,792	1,812	1,473	3,142
EBIT Margin	33.8%	6.2%	15.0%	28.7%	25.3%	20.2%	34.9%
Return on Capital	20.6%	3.2%	7.4%	16.4%	14.6%	11.7%	22.5%
Debt/ Capital	43.7%	55.0%	48.7%	36.0%	32.5%	35.6%	28.3%
EV/ Revenue	2.44x	1.99x	1.66x	2.04x	2.08x	2.31x	3.57x
EV/EBIT	7.31x	6.98x	23.95x	11.31x	7.66x	9.14x	14.57x

SalMar's earnings declined with the industry when salmon prices fell in 2011. During these periods, it's essential to differentiate company-specific issues from industry issues and cyclical from structural declines.

Investors who compared SalMar's earnings with its peers would have noticed that SalMar was still among the best performers from a profitability perspective, even as return on capital declined from 20.6% to 3.2% between 2010 and 2011.

As you see, EV/EBIT isn't very useful in cyclical industries. When its EV/EBIT looked expensive (2012), that was when SalMar was actually cheap, given the decline in earnings.

It's important to understand this in consumer cyclicals and separate structural declines from cyclical declines.

Britannia Industries - An Indian brand refresh

Return: 1,264%

Every year, 5 million retail outlets receive biscuits, bread, creme wafers and bakery products from Britannia Industries. India's leading biscuit maker was founded in 1892 and is also one of the oldest existing companies in India and is currently led by Nusli Wadia under the Wadia Group. Prior to them, the ownership of Britannia Industries changed hands a few times. A British business group started the group before Peek Freans acquired a controlling stake in the 1920s. By the 1980s, ownership had changed to Nabisco Brands before the Wadia Group and Danone purchased an equal stake in Britannia.

Britannia is segmented into three areas;

- Bakery: Biscuits, cake, rusk and bread
- Dairy: Packaged milk, and value-added dairy products
- Adjacent products: Cream wafers, croissants and salted snacks

Most of its sales are to Indian consumers (95% of sales), while international countries like Nepal, Egypt, and Bangladesh represent the rest of the sales. Its brand portfolio includes consumer favourites like Good Day, Tiger, NutriChoice, Milk Bikis and Marie Gold biscuits. Britannia Industries is the second largest listed Indian food and beverage company, behind Nestle India.

Images: Britannia Industries is a market leader in the Indian biscuit market. They recently expanded into more premium confectionary products like their Toastea and Treat Creme wafers (right)

Investment Case

Although Britannia has always been among the leaders in the Indian biscuit category, its financials have not always been as impressive as they currently are. Before the arrival of its current CEO, Varun Berry, an experienced FMCG executive, Britannia had struggled to grow earnings due to competition from Mondelez and Parle Industries. Between 2008 and 2011, while revenue grew by 65%, Britannia did not register any growth in earnings, and its operating margin ended the 2011 FY at just 3.8%, down from 7.1% in 2008. Parle Industries, Britannia's closest biscuits rival, overtook Britannia in market share after its flagship Parle-G biscuits continued to lead the industry growth.

Before joining Britannia, Varun Berry had built a track record as a turnaround specialist after a three-year stint as PepsiCo India's CEO. In his first interview as Britannia's CEO, he highlighted his plan to turn Britannia around and regain its market leadership against peers like Parle and Mondelez. Britannia had a strong brand and Varun Berry knew its brand wasn't the issue. The issue for Britannia was its efficiency and bloated cost structure, and simplifying this was central to his initial turnaround strategy.

Britannia was outsourcing two-thirds of production to contract manufacturers, which, although asset-lighter in the short term, was hurting margins over the long term. Britannia invested in its manufacturing facilities like the 55,000 sq ft Bidadi facility near Bangalore and a capacity of 100,000 tons of biscuit manufacturing per year. Its budget was streamlined in marketing and advertising and refocused on quality rather than quantity. Its core brands, like 50:50 and Good Day, increased their presence in sports leagues like the Indian Premier League and the Asia Cup T20. More aligned incentives were added to the distribution and sales force, and management prioritised rewarding top performers in its sales team, boosting the salesforce overall morale. Britannia began seeing progress by 2015 as its operating margins doubled between 2012 and 2015. Product returns and write-offs had decreased, and waste was more managed and minimised in its plants.

Turning its operations around was not enough for management, and the latter half of the decade had a different strategy, achieving growth. After identifying the potential opportunity, Britannia first mapped out an Indian rural market plan to grow market share. Its preferred dealers in the distribution chain grew from 8,000 to 25,000 between 2016 and 2021. Britannia prioritised pushing its value products like Tiger in rural markets, which boded well with the lower household budgets. Britannia was aware there's a limit to pricing power in biscuits, and management decided to expand into more premium snack categories in the baked salted snacks, premium cookies, croissants and milkshake segments. Its Tetra pack in packaged milkshakes gained a 20% market share and was already the second largest brand within a year of launch. These premium items provide resilience to the volatile input costs like flour, sugar, cashew and milk.

Overall, Britannia regained its market leadership as it compounded revenue and operating profits by 9.9% and 22.4% per year, respectively, over the decade, while operating profit margins improved from 4.8% to 14.2% during the period. Its multiples also expanded as EV/Revenue grew from 1.1x (24.8x EV/EBIT) in 2012 to 5.8x EV/Revenue (40.8x EV/EBIT) in 2022.

Lesson

There were many consumer turnarounds in India, and Britannia Industries is a classic example of the management and strategy steps needed to revitalise a brand. There are easy consumer turnarounds- star brands with fixable operational problems, and harder consumer turnarounds which tend to be weaker brands with challenging operational issues. When a potential turnaround opportunity has been spotted, it's crucial to identify the company's position on the consumer turnaround spectrum. For Britannia, its 100+ year heritage in India's biscuit market and presence of its core brands meant that turning the company's fortunes around didn't require exceptional effort.

The new management identified the issues and derived a plan to solve them. For most consumer turnarounds that return more than 1,000%, the investment case does not end at just turnarounds, and the potential to transition into a growth company creates significant value. In Britannia's case, management drove top line growth by expanding into the rural segment and broadening into premium confectionary products.

₹ m	2009	2010	2011	2012	2013	2014	2015	2016
Revenue	34,212	37,749	45,931	54,635	61,459	68,372	77,877	83,355
Cost Of Goods Sold	24,280	27,391	34,040	39,989	44,200	47,917	47,359	50,554
Gross Profit	9,932	10,358	11,891	14,647	17,259	20,455	30,518	32,801
Op. costs	8,019	9,186	10,130	12,004	13,783	15,005	23,260	21,697
EBIT	1,913	1,172	1,761	2,642	3,476	5,451	7,258	11,105

Return on Capital	12.1%	**7.5%**	11.4%	16.6%	21.5%	34.8%	38.4%	**38.1%**
EBIT Margin	5.6%	**3.1%**	3.8%	4.8%	5.7%	8.0%	9.3%	**13.3%**
Total Debt/ Capital	27.8%	**69.9%**	66.4%	59.5%	44.0%	16.2%	11.2%	**6.4%**

EV/ Revenue	1.25x	1.35x	1.33x	1.27x	1.39x	1.96x	3.96x	4.05x
EV/EBIT	19.81x	36.54x	36.44x	28.69x	24.35x	24.72x	40.54x	31.81x

Britannia's financial statements depicts the typical turnaround case when debt is high, profitability is subdued and growth is low.

You're likely to gain more by focusing on the story i.e. why the business declined, what its peers and the broader industry is doing, what management have identified in the turnaround plan and what leading indicators and metrics you can use to gauge the progress.

Britannia always had a strong brand in India, making a potential consumer turnaround easier.

As you see, the potential return can be great even in turnarounds. Britannia's operating margins improved from 3.1% to 13.3% between 2010 and 2016. Its balance sheet also improved, supporting further investments and its growth into premium confectionary products.

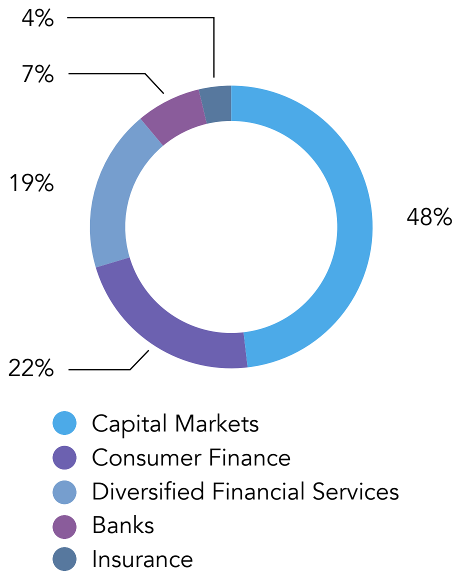
Financials

Outperformers: 27 companies

The financials industry was underrepresented relative to other sectors as it was just 6.1% of outperformers, despite representing 12.6% of the overall public market. One may think the industry's underperformance was due to the financial crisis, but if we adjust the period from the bottom of the financial crisis in 2008 to 2018, the number of outperformers only increases from 27 to 39 companies, which was still underrepresented relative to its industry weighting.

We split the financials sector into five areas;

- Banks (diversified and regional banks, thrifts and mortgage finance)
- Insurance (life and health, property and casualty, reinsurance, multi-line and insurance brokers)
- Capital Markets (asset managers, financial exchanges and investment banks)
- Consumer Finance
- Diversified Financial Services



Banks tend to be the popular allocation choice within financials because it represents 36% of the industry. Yet, only two banks (7.4% of financials) were represented within the subset, highlighting how tough delivering great returns by investing in the banking industry is. Banks are under pressure from leaner financial companies across their various segments. In the secured and unsecured loans market, consumer finance outperformers like goeasy in Canada and Krungthai Card in Thailand compete directly with banks for customers. In the asset management segment, banks compete with the growing private equity industry in both equity and debt-funded investment opportunities. Banks are also quite cyclical, and if we adjust the period to the bottom of the financial crisis impact (2008-2018), the number of outperformers from the banking industry increases to 14 companies, which still underperforms its sub-sector weighting within financials.

The insurance market, which represents 11% of all listed financials, was similarly underrepresented as only one pure-play insurer delivered a more than 1,000% return. The difficulty for insurers with outperformance is that achieving strong profitability, fast growth and quality underwriting are typically conflicting goals for insurers. For example, a life insurer seeking to grow faster will often have to underwrite premiums for riskier customer profiles which can also impact long-term profitability and combined ratios. That said, the insurance outperformance dilemma didn't stop Bupa Arabia for Cooperative Insurance from delivering 1,880% over the ten years. Bupa Arabia benefitted from the growing Saudi health insurance market, which happened to be the fastest growing worldwide. Bupa Arabia grew its premium and annuity revenue four-fold while its loss ratio has consistently been below 85% over the ten years.

The capital markets segment was much more promising and represented almost half of all financials outperformers, slightly above its 40% proportion of the financials industry. We can broadly split their business models into two; companies that earn asset management fees and those that provide their services to asset managers. Asset managers aren't the most obvious place to search for outperformers, but when managed well with the appropriate performance incentives, asset managers can be highly profitable and, in some cases, fast-growing.

The British asset managers, Liontrust and Impax, are good examples of this. Between 2015 and 2021, the asset managers earned at least 20% operating margins each year. In the Impax case, they have only been loss-making once since 2006 and compounded revenue and operating profits by more than 23% over the decade. The performance of funds has a significant role in an asset manager's bottom line, and it's crucial to examine the strategy and incentives when analysing asset managers.

The asset management service providers have some of the most profitable companies in the world. Their business models are less complicated than the core asset managers, given the minimal risk they take on assets. When managed well, the asset management service providers tend to have sticky and recurring revenue streams, and in our case study below, we explore MSCI, one of the most profitable and well-managed financial exchange and data companies.

From an outperformance lens, consumer finance was the second best-performing financials sub-segment and all but one of the six companies were from Asia. India had three companies and was led by the best performing financials, Bajaj Finance which returned 7,060% over the decade. Bajaj Finance is the lending arm of Bajaj Finserv, another outperformer in the diversified financial services segment. Its business operations are split across six segments, with consumer finance and home loans being the most significant two segments. After the financial crisis, banks had fled from the consumer market in India and what seemed like high risks was an opportunity for Bajaj Finance as it stepped up its operations and consumer financing services during the downturn.

Today, Bajaj Finance has strengthened its several competitive advantages, from its access to consumer data and geographical presence in India to its performance-oriented culture in long-term planning and monthly variable pay based on key metrics.

Finally, the diversified financial services segment produced five outperformers and we look into Hypoport, one of Germany's leading real estate and credit platforms, in our case study. These diversified financial services business models are very complex given their multiple revenue segments, and we will explore how simplifying the operational analysis can assist with finding future outperformers from the segment.

MSCI - A growth spinoff

Return: 1,208%

Every quarter, global asset managers like us send factsheets to clients with our performance compared to benchmarks provided by financial data companies like MSCI. In the late 1960s, as investments in public markets beyond the US began increasing, Capital International began publishing indexes covering the global stock market for non-US markets. In 1986, Morgan Stanley licensed the rights to indexes and branded these indexes as the Morgan Stanley Capital International (MSCI) indexes.

MSCI now serves over 6,300 clients in 95 countries. Beyond indexes, the MSCI also provides analytics solutions on risk management to portfolio management content and services such as BarraOne, Climate Lab Enterprises and RiskMetrics, ESG and climate offerings such as its MSCI ESG ratings and ratings climate solutions, and its more recent segments in Real Estate. Due to the nature of these services, MSCI's revenue is typically recurring subscriptions (70% of revenue). There are also asset-based fees where the fees earned are linked to the client's assets under management or based on trading volume.

From a cost view, MSCI ensures its products have a broad scope and are relevant to its clients. Hence, MSCI dedicates a significant amount of its costs to research, development, and technology capabilities. While barriers to entry are low, barriers to success are high, given the network effects created by these market indexes.

Investment Case

Financial exchanges and index companies have high margins, and MSCI is no exception, as the costs to asset managers are almost as certain as paying corporate taxes. Among all 108 listed financial exchange listed companies, 77 of 108 companies are profitable, while 58 of 108 achieve operating profit margins above 20%.

Despite the strong profitability, financial exchanges and data companies have not always been popular investment choices in markets. Credit rating agencies like Moody's and S&P were at the centre of the financial crisis due to their role in providing inaccurate mortgage security ratings. The market pessimism affected the overall industry and valuations declined across the industry.

The American banks were also under pressure to raise cash; Morgan Stanley needed to repay the $10 billion it received under the government bank bailout program. Although MSCI was not a credit rating agency, its IPO was not very popular, and its stock price declined by -54% within the first year, with EV/EBIT falling to a low of 9.3x despite its 32% operating profit margin in 2008.

MSCI also had a reputation as the go-to provider of global index products. In 2008, the then-growing (exchange-traded fund) ETF industry had $119 billion linked to the MSCI's equity indices. 55% of Asian and EMEA region ETF listings were benchmarked against MSCI indices. Revenue from EMEA and Asian clients also represented 46%, and there were around 60 indexes created by MSCI, ranging from industry-specific to country-specific indexes.

The rise of passive investing, the flows to emerging markets and the growth of thematic investing also contributed to MSCI's increasing significance in the industry. Blackrock, the leader in passive investing, represented 12.7% of MSCI's revenue and as long as there's demand for Blackrock's passive funds, MSCI is guaranteed to make revenue from it. The ETF industry now has over $10 trillion under management, and MSCI continues to earn fees from these products. Daily indices calculation also grew from 150,000 per day in 2011 to 267,000 daily in 2021. A more recent growth driver has also been the rise of ESG investing, which is a massive engine for MSCI. Its ESG and climate division grew by 84% over the last two years.

Its revenue and operating profit compounded by 8.9% and 13% per year over the decade, while operating profit margins expanded from 39% to 54%. As profitability increased and sentiment for index providers improved, its multiples grew from 5.7x EV/Revenue (15.8x EV/EBIT) or 16.5x EV/Revenue (30.8x EV/EBIT).

Lesson

For anyone who thought spinoffs could not turn into multi baggers, MSCI is an example of this. Some of the best spinoffs occur when the parent company is going through financial problems and is desperate to raise cash to meet short term goals or when regulations force larger firms to simplify and reorganise their subsidiaries to improve industry competition or quality. In these situations, it's more likely that the subsidiary will get listed at an undervalued price, as MSCI did in 2007. The financial crisis also brought investment pessimism to index providers as peers like S&P and Moody's were dealt with fines and legal issues. As an investor, it is easier to panic during these pessimistic periods but one must focus on the fundamentals. Some questions that could have guided you into realising MSCI could rebound from the crisis were:

- Does MSCI make revenue from credit rating?
- Was the ETF industry becoming less relevant?
- Was MSCI losing market share in global index provision?

Network effects aren't just limited to the IT industry, and MSCI is a beautiful example of network effects applied in the financial industry. The MSCI brand has become synonymous with global investing, given its use as a benchmark to asset managers, and as more managers utilise the MSCI data services, it becomes more valuable to them and their investors. These hidden competitive advantages, coupled with their asset-light model, allow financial data providers like MSCI, Easy Money Information Co and Hithink RoyalFlush to earn EBIT margins above 50% and deliver more than 1,000% share price gains.

$ m	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021
Rev	827	913	997	1,075	1,151	1,274	1,434	1,558	1,695	2,044
Cost Of Goods Sold	230	241	277	268	252	274	287	288	292	359
Gross Profit	597	673	720	807	899	1,001	1,147	1,270	1,404	1,685
Op. Costs	279	332	383	403	411	421	452	515	520	583
EBIT	318	340	337	404	488	580	695	755	883	1,102

EBIT growth	(2.3%)	7.0%	(0.9%)	19.8%	20.8%	18.8%	19.8%	8.7%	17.0%	24.7%
EBIT Margin	38.5%	37.3%	33.8%	37.6%	42.4%	45.5%	48.4%	48.5%	52.1%	53.9%

EV/Rev	5.22x	5.04x	5.25x	6.98x	7.75x	9.27x	11.44x	13.97x	19.10x	25.85x
EV/EBIT	14.47x	13.73x	15.11x	20.30x	19.65x	21.41x	24.68x	29.10x	38.23x	48.74x

MSCI was among the most profitable outperformers that consistently gained margin expansion as its EBIT margin expanded from 38.5% in 2012 to 53.9% in 2021.

Adding more users doesn't cost MSCI much; you can notice this with the cost of goods sold (COGS) compared to revenue. COGS grew by only 56% during the period, compared to the revenue growth of 147%.

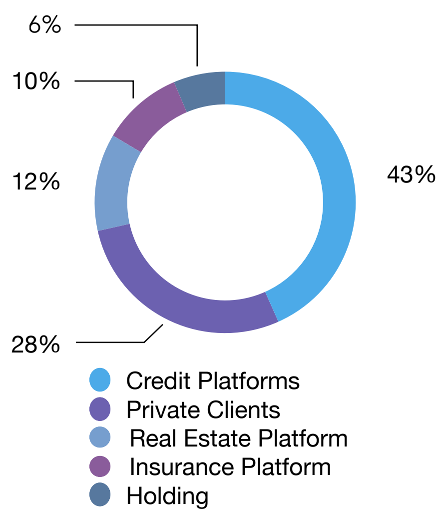
Hypoport SE - Innovation in Germany's mortgage financing industry

Return: 2,066%

Hypoport is a German group of 21 companies operating across credit, real estate and insurance with over 2,000 employees. It was founded in 1954 under one of its current platforms, Dr. Klein, as a real estate platform. In 2001, Ronald Slabke, Hypoport's current CEO, led a management buyout in 1999 and merged Dr. Klein with EUROPACE to form Hypoport and then took it public in 2007. Dr Klein & Co also expanded into new areas, such as mortgage financing for private clients and broker distribution via its Qualitypool GmbH.

Hypoport is currently segmented into five business segments;

- Credit platforms: Hypoport Mortgage and EUROPACE AG are the major subsidiaries. EUROPACE is the largest credit platform for financial products to private clients in Germany, with 800 partners (banks, insurers) and over 400,000 annual transactions.
- Private Clients: Dr. Klein Privatkunden AG is the core business focusing on brokering residential mortgage finance products.
- Real Estate: Hypoport has a group of property-related companies and its target groups are mortgage lenders and the credit industry. FIO SYSTEMS AG provides SaaS solutions for housing payment processing and insurance claims management. Dr. Klein Wowi Finanz serves municipal and cooperative housing companies.
- Insurance platforms: Within insurtech, ePension is a digital platform for administering occupational pension schemes. Qualitypool provides support to small and medium-sized financial product distributors in insurance brokerage.
- Holding: These include non-operational activities where Hypoport may take a joint-venture stake in another company.



Hypoport revenue split

Investment Case

As you can already tell, Hypoport is a highly complex business at first glance. This was one of the reasons we selected them for a case study, as it demonstrates the nature of many financial companies. Complex business models can sometimes be a barrier to entry for investors because many asset managers would simply screen these out after reading the first few pages of their annual report. To understand businesses like Hypoport, you must first segment each business by business drivers and operations, then explore its overall capital allocation strategy.

With Hypoport, we can sum up its business model into a platform that simplifies connectivity in the real estate industry. EUROPACE has been central to this strategy, so let's explore its investment case.

EUROPACE

EUROPACE serves as a marketplace for mortgage finance, building finance products and personal loans by bringing private and cooperative banks with product suppliers such as insurers via its platform. In 2021, its total volume of transactions had a value of €102.2 billion.

- Mortgage finance (83% of volume)
- Building finance products (13% of volume)
- Personal loans (4% of volume)

Mortgage financing transactions occur when you want to purchase a new home, finance new non-residential building projects, build infrastructure or for follow-up refinancing. So any factor affecting these could impact the volume of transactions on EUROPACE. External factors include changes in interest rates, migration, domestic construction activity or industry regulation changes. Earlier in 2012, Germany had just emerged from the financial crisis, and its effects on other EU countries like Greece pushed interest rates down. With falling interest rates, mortgage rates subsequently fall and buying a home becomes more attractive. That said, the nature of the banking crisis meant mortgage lenders had left the market, even in Europe, due to the losses and risks that had mounted up. Between 2006 and 2008, new mortgage financing with private clients fell by -6%, while personal loans fell by 40% in Germany.

You would probably assume EUROPACE's volumes fell as well, right?

Not at all. While the market for mortgage financing and personal loans declined, EUROPACE's volumes were up 51% and 266%, respectively, between 2006-2008. EUROPACE was solving a structural problem in the B2B financing industry through technology. Financing hasn't always been transparent (financial crisis); it can be slow, paperwork intensive and sometimes expensive. EUROPACE was the first platform to integrate all players in the mortgage market, allowing financiers to operate more efficiently and more flexibly with risk-based pricing support. The value was clear for its users; it saved time and cost and was much easier to use than traditional methods.

The financial crisis accelerated the application use case for EUROPACE, which is typical for products and services that provide cost and time-saving advantages. You can file all necessary mortgage documents, value properties to determine discrepancies between the credit limit and market value, automate financing proposal reviews and do much more on one platform. The B2B integration also creates network effects where the more partners join, the more valuable the data, recommendations and solutions become. Major banks like Santander expanded their partnerships with EUROPACE to save costs, further enabling the marketplace and driving activity. In 2006, EUROPACE had a 4% market share in mortgage financing, and by 2008, its market share had doubled. Today, its market share is 30% of the German mortgage financing volume.

This, coupled with the innovation and value creation at other Hypoport segments, grew its role in Germany's financing market and revenues and operating profits compounded by 19% and 22%, respectively, over the decade. EV/Revenue also increased from 0.7x (11.1x EV/EBIT) in 2012 to 2.9x (29.9x EV/EBIT) in 2022.

Lesson

We only reviewed Hypoport's EUROPACE platform above, but there were other business drivers in Hypoport, like its expansion into the insurance market, its volume growth in private client loans, and its acquisitions across the holding segment. To understand these business drivers, you need to also consider the implications of macro factors like Germany's low housing ownership, the EU's migration changes and the broader real estate industry dynamics. Diversified financial services like Hypoport require investors to do the research legwork, and as we learned from Hypoport and other outperformers like eGuarantee, Bajaj Finserv and Meritz Financial Group, the upside, especially when neglected by other market participants due to the complexity can be huge.

Investors in Hypoport have not seen smooth sailing. While its shares returned a whopping 2,066% over the ten years, its shares have declined by -60% in the past year. Markets became very excited about Hyport's prospects as its EV/EBIT peaked at 104x in 2021. As we have already learned, everything has a price, even exciting growth businesses like Hypoport, and this also serves as a reminder of the importance of valuations in the outperformance journey.

€ m	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021
Revenue	88	98	112	139	157	195	266	337	388	446
Cost Of Goods Sold	39	45	52	63	66	86	115	139	156	173
Gross Profit	49	53	61	76	91	109	151	199	231	273
Op. Cost	46	49	53	57	68	86	122	165	202	231
EBIT	3	4	8	19	23	23	29	34	29	42
EBIT Margin	3.6%	4.0%	6.9%	13.8%	14.8%	11.8%	10.9%	10.0%	7.6%	9.5%
EBIT growth	(50.0%)	22.2%	99.4%	146.9%	20.4%	(0.4%)	25.9%	15.8%	(12.7%)	44.0%
EV/Rev	0.78x	0.69x	0.73x	1.67x	3.12x	3.98x	4.75x	5.18x	7.47x	8.47x
EV/EBIT	10.16x	31.83x	12.02x	16.64x	21.12x	25.97x	36.81x	39.44x	57.57x	62.95x

Hypoport's operating profit margins weren't initially great. In 2012, its EBIT margin was just 3.8%. By 2015, this had improved to 13.8%. This is one of the benefits of gaining scale in platforms like EUROPACE, where the costs of adding a new user fall over time.

Paying 63x EV/EBIT for Hypoport's shares cost shareholders huge losses in 2021, and achieving outperformance also requires valuation discipline.

Communication Services

Outperformers: 19 companies

The communication services industry surprisingly marginally underperformed as it represented 4.3% (19 of 446 companies) while representing 4.4% of the listed market universe. Like the information technology industry, communication services are also valued at a premium to the global MSCI index on a P/E ratio basis despite severely underperforming the MSCI World Index during the past decade.

The rise of big technology companies like Alphabet, Meta Platforms, Netflix and Tencent has diminished telecom's role in the sector, given Big Tech's global reach, business models and competitive advantages. One no longer needs mobile carriers like AT&T to communicate over the phone with the availability of Meta Platforms family of apps. That said, the success stories within the communication services had little to do with Big Tech. Netflix was the only company among the top 100 biggest communication services companies that returned more than 1,000%.

We split the communication services industry into two segments;

- Telecommunication services (3 companies)
- Media and entertainment (16 companies)

The growth opportunities in the telecommunication industry have slowed in recent years, which showed in its outperformers weighting. Among the three telecommunication outperformers, only one was a traditional telecom; Hellenic Telecommunications, Greece's largest telecommunication company. Hellenic was not a growth company; its shares had fallen by -95% during the financial and Greek debt crises between 2007 and 2012 (its shares have still not recovered to pre-financial crisis highs).

Media and entertainment companies represent 82% of the communication services industry which explains why the sector represented 16 of the 19 industry outperformers. We further split the media and communication industry into three segments; content, platform and media support services.

Content was dominated by gaming studios and publishers like CD Projekt in Poland and GungHo in Japan but it also had older economy media content companies like television broadcasters like Nexstar Media Group and Gray Television in the US. Nexstar Media defied the declining market in television broadcasting as it acquired various television stations across the US. You might be surprised to hear Nexstar (2,543%) outperformed its newer economy rivals like Netflix (2,079%) during the decade. Innovation and newer business models don't always guarantee better returns.

Media and entertainment platforms had fewer companies, with only three significant outperformers, AfreecaTV, the South Korean live streaming platform, PVR, the Indian movie theatre chain and Netflix. Media and entertainment platforms have less room for many players given the "winner take most" industry dynamics, but this also means their revenue streams are less cyclical than content providers due to their subscription models.

Finally, media support services, ranging from record labels like JYP Entertainment in South Korea to media consultants like ValueCommerce in Japan, delivered various outperformers. These companies mainly benefitted from the increased business spending on social media and other internet applications. Record labels, for example, have seen their business models evolve due to the rise of music streaming, providing additional monetisation options.

We examine how two companies in media and entertainment achieved growth and profitability during the decade; JYP Entertainment and CD Projekt.

JYP Entertainment - The rise of K-pop

Return: 1,186%

JYP Entertainment was one of the initial big three record label and publishing companies in South Korea and was founded by Park Jin-young in 1997. The group was initially called Tae-Hong Planning Corporation and aimed to develop new South Korean music industry talents. In 1999, JYP signed its first artist, Pearl (also known as Jinju), who released her album, Sunflower, under JYP. More success followed with artists like Rain and Park Ji-yoon and music groups like Wonder Girls and 2PM.

Although JYP has created many subsidiaries, its primary business is in K-pop record labelling, agency and publishing. When JYP signs an artist, they go through the JYP training process, which includes vocal training, language and interview training, stage performance training and other skills that may boost an artist's brand. Their songs or albums get published via platforms like Melon, Spotify, Apple Music and Tencent Music Entertainment. These also include over-the-top platforms like YouTube. Distributors like The Orchard, a subsidiary of Sony Music Entertainment, also collaborate with JYP to increase an artist's profile. Here, JYP receives a commission from album sales and also earns a commission from online platforms.

Beyond record labelling, JYP also provides advertising opportunities for artists and significant clients, include Dentsu Korea, Nexon, Interojo and Gyeongnam Pharmaceutical. On some occasions, JYP artists like TWICE and DAY6 also earn licensing deals and generate royalties from brands across industries like gaming, cosmetics and fashion. Other revenue streams include performance fees from concert sales, global tours and some strategic partnerships.

JYP and the South Korean labels stand out from international peers due to their audition model. Artists like Nichkun in the 2PM boy band were discovered by JYP scouts and later went through JYP's auditioning model. The JYP auditions allows JYP spot future artists early in their careers and increase their pipeline of future talents.

Investment Case

The rise of Hallyu and K-pop

South Korean pop music (K-pop) is one area of the Korean wave (Hallyu), which also cuts across movies, TV dramas, pop culture and games. South Korea is one of the few countries with a dedicated goal of exporting its popular culture, and there are a few reasons why. The Asian Financial Crisis weakened FDI flows into South Korea and also damaged the global reputation of the Chaebols. Its tourism sector was also affected, and the South Korean government needed new avenues to build its international reputation.

Image: JYP Nation recording artists and groups include 2PM, Twice, Stray Kids and ITZY. (company website)

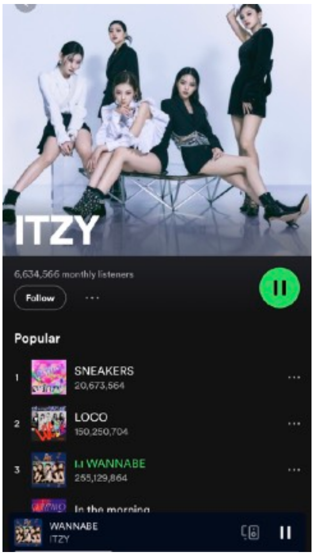
With music seen as one of the key channels in achieving this, K-pop benefitted from the strategy, and it quickly expanded rapidly into other East Asian countries like Japan before growing into China and the rest of the world. South Korean artists and their agencies also developed a model that supported an artist's overall growth and longevity, ensuring they could reach and relate with different cultures. JYP Entertainment, for example, had a reputation for teaching their younger artists languages like Mandarin, English and Japanese during the training program.

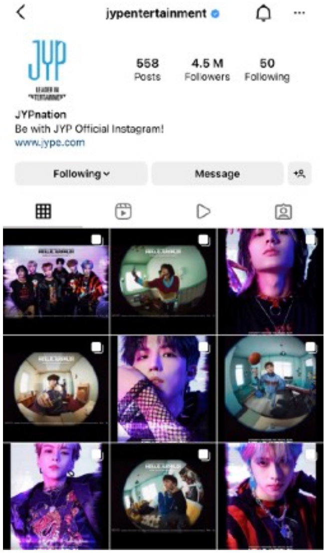
JYP Entertainment

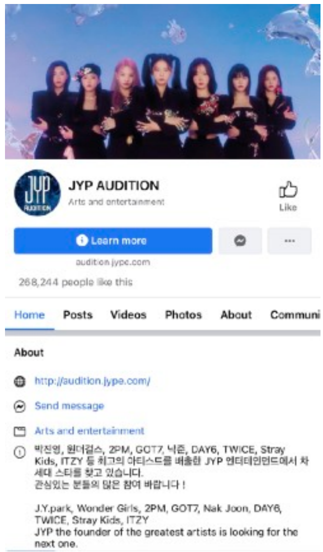
JYP, along with SM, YG and HYBE, are among the four largest music label production companies in South Korea. Beyond the broader K-pop and Hallyu trend, music labels have also benefitted from the rise of music streaming like Spotify and Melon. These platforms have shifted fans from using illegal music mediums and CDs to better monetised subscription-based models. Global revenues from these streaming platforms have grown from $1 billion in 2012 to $16.9 billion in 2021, with mobile devices accounting for 62% of the market share. The K-pop industry also compounded by 22% over the past years, and unlike the rest of the global music industry, it has also bucked the trend of falling album sales.

Beyond macro forces, JYP exceeded its industry peers in recent years. First, the initial expansion into the rest of Asia between 2010 and 2012 with the opening of JYP's China, Japan and Thailand offices created the foundation for JYP's position in the rest of the continent. JYP was also successful in spotting talented artists and forming bands early on. While its training and open audition methods have been controversially strict with artists, bands like GOT7, TWICE and DAY6 were particularly successful in both quality of their art within and beyond South Korea and also in their longevity which provides a recurring stream for JYP. The auditions also allowed JYP to diversify its revenue across many potential music groups. Today, JYP maintains a strong pipeline of music groups that can exceed past successes, such as Xdinary Heroes, NMIXX and NiziU.

Since the merger of its listed and unlisted divisions, JYP has gone from loss-making economics to leading its peers in profitability, paid down its debt and maintained a debt-free balance sheet since 2015 and revenue and profitability growth has also become more consistent and accelerated in more recent years. Despite 2021 revenues being more than 14-fold higher than the ₩15 billion achieved in 2012, its EV/Revenue only expanded from 6.3x in 2012 to 6.5x in 2022. Its returns were primarily driven by earnings growth.







Images: (Left) ITZY is one of JYP's latest girl group's, debuting in 2019 with their "It'z Different" album. (Spotify)

(Middle) JYP and their artists engage with social media platforms like Instagram to drive engagement with fans (Instagram)

Lesson

Record labels have traditionally not been a favourable industry in markets. Revenue and earnings are lumpy, labels are often exposed to a concentrated number of artists, which can be difficult to forecast from a brand value and future earnings view, and sometimes, an artist's value to a record label can be wiped out from controversies and legal disputes. Due to this, music labels typically experience periods of extreme overvaluation or undervaluation. 2001-2009 was a period JYP experienced extreme overvaluation. In fact, shareholders who held JYP shares between 2002-2012 would see their investment fall by -5% over the ten years.

Despite the growth of K-pop and the creation of additional revenue streams like music streaming in the past decade, JYP's listed peers like SM and YG only returned 5.2% and 5.3% annualised, respectively, compared to JYP's 29% annualised return over the ten years. YG's revenue tripled over the decade (₩355 billion revenue in 2021), but its operating profits didn't grow (₩21 billion operating profits in both 2012 and 2021); a growth theme does not always trickle into a good investment.

YG relied on too few artists and was plagued with internal conflict, public controversies and various disputes leading to many top artists leaving prematurely and nullifying contracts. Similarly, SM has also suffered from public spats concerning its relationship with artists, which have affected its ability to capitalise on non-recording revenue streams that have benefitted JYP. JYP has also had their fair share of these artist-label controversies, but these have been more private when compared to YG.

Generally, games, movies and music labels require an in-depth analysis of the culture, growth & diversification strategy, and monetisation & longevity of its IP to make any judgements on future revenue, earnings or cash flow.

₩ m	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
Revenue	19,845	15,067	21,324	48,483	50,557	73,645	102,242	124,821	155,436	144,399
Cost Of Goods Sold	16,343	11,617	13,153	30,281	35,035	46,445	63,127	69,035	79,693	67,748
Gross Profit	3,503	3,450	8,171	18,202	15,523	27,200	39,115	55,786	75,743	76,651
Op. Cost	6,531	9,978	10,725	9,945	11,324	14,462	19,654	26,527	32,437	32,515
EBIT	(3,028)	(6,527)	(2,553)	8,257	4,199	12,738	19,461	29,259	43,306	44,137

EBIT Growth	-	-	-	-	(49.1%)	203.4%	52.8%	50.3%	48.0%	1.9%
EBIT Margin %	(15.3%)	(43.3%)	(12.0%)	17.0%	8.3%	17.3%	19.0%	23.4%	27.9%	30.6%

EV/Rev	7.63x	8.20x	6.93x	6.21x	3.08x	2.76x	2.66x	7.30x	5.86x	5.52x
EV/EBIT	216.83x	NM	NM	72.13x	31.77x	25.62x	15.21x	41.95x	24.52x	18.13x

JYP Entertainment did not make a great investment for many years and record labels are generally too lumpy for most investors.

The strategy improvement and diversification supported JYP's profitability and since 2014, JYP has achieved y-o-y earnings growth every year.

CD Projekt - The volatile ride of gaming studios

Return: 2,262%

CD Projekt is a Polish video gaming publisher, developer and distributor of video games for PC, Nintendo Switch and other consoles worldwide. It was founded in 1994 initially as a video game retailer by Marcin Iwiński and Michał Kiciński at a time when the Polish gaming market was scarce, and its economy was transitioning into a market-based economy. With $2,000, the duo started localising and selling games at mom-and-pop shops. CD Projekt saw success with titles like Ace Ventura and Baldur's Gate, where they brought in famous Polish actors, translated the language and sold thousands of copies.

In 2002, the company formed a video game studio CD Projekt RED. After years of disruptions and difficulties, its flagship game, the Witcher, was released in 2007. Follow up sequels were created, and CD Projekt broadened its portfolio of action role-playing games into new franchises such as Cyberpunk 2077. Beyond its content, CD Projekt also developed GOG.com in 2008, a digital video game distribution platform where customers can buy various games with over 2,000 choices. GOG.com accounted for almost a quarter of its 2021 revenue.

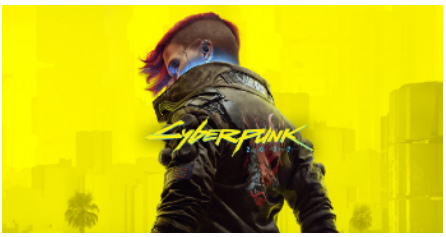


Image: CD Projekt's major projects include roleplaying games like Cyberpunk (left and The Witcher (right)

Investment Case

Like many gaming studios, CD Projekt is cyclical and usually has lumpy revenues and earnings. Gaming companies typically take two main forms. Those like CD Projekt may focus on just a few franchises with big budgets (AAA games). Their earnings are lumpier and require bigger budgets for developing games. When things go well, the payoff can be significant. The other form is studios with many franchises and games, typically indie games with smaller budgets. Their earnings are less lumpy and they are usually mobile games relying on advertising or in-game purchases. Star gaming studios typically have four things;

- Great monetizable content and potential to develop more content
- Financial flexibility and capital allocation strategy to support ambitions and growth
- Good marketing and customer awareness strategy
- The team culture to hire and retain top creative talents

CD Projekt has done well on the first three points but has struggled with the final area. The development, story and gameplay behind The Witcher and Cyberpunk 2077 were bold, fun and ambitious. The studio has seen positive reviews from critics and players over the years. Since the success of the Witcher 2, CD Projekt has maintained a debt-free balance sheet with a strong cash position. Cash is currently half of its total assets and operating profits have been positive yearly since then.

CD Projekt has also had strong relationships with non-Polish gamers and industry partners. Its marketing and outreach strategy has been quite strong, even with non-Polish gamers. The revenue from Polish gamers has consistently fallen from 50% of total revenue in 2011 to just 2.4% in 2021. Thanks to the increased industry connectivity in gaming platforms like Steam and console platforms, CD Projekt expanded its global reach into important markets like the USA and Asia; revenue from North America accounts for roughly 70% of total revenue.

However, its marketing boldness has not always matched the game quality, costing CD Projekt its reputation after its failures with Cyberpunk 2077. We will explore more on this in the lesson section.

After CD Projekt showed it was not a one-hit studio, the group gained more analyst following, and multiples expanded over time. In 2012, CD Projekt traded at 3.5x EV/Revenue (22.9x EV/EBIT) with operating margins of 17%. By 2022, the EV/Revenue was 9x EV/Revenue (26.3x EV/EBIT) with operating margins of 30%. We must note that the lumpy nature of AAA studios like CD Projekt makes multiples less useful in analysis.

Lesson

While Revenue and operating profits compounded by 21% and 31% CAGR, respectively, during the decade, CD Projekt has seen its market capitalisation fall by -80% (29 billion złoty peak) in the past two years due to overvaluation and expensive mistakes by management.

For role-playing AAA games like Cyberpunk 2077, most of its sales will happen in the first few weeks and without microtransactions and advertising revenue, this becomes the sole revenue segment. Assuming Cyberpunk 2077 sold 30 million copies (initial projections) at an average price of $60, this would have brought in $1.8 billion or (8 billion złotych) over its lifetime. With the lumpiness of earnings, it's incredibly difficult to justify a market capitalisation of 29 billion złotych.

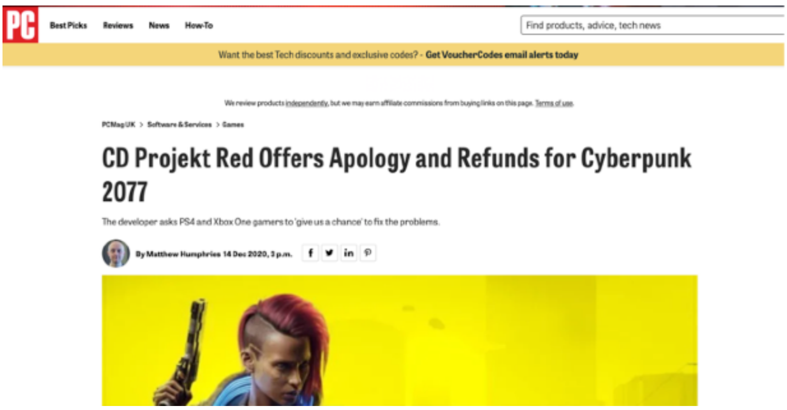


Image: Cyberpunk was removed from the PlayStation store and CD Projekt had to offer public apologies and refunds to customers due to the bugs and shortcomings. (PCgamer)

Another issue with CD Projekt was the final requirement for top studios, a culture that attracts and retains top talent. CD Projekt had a reputation for staff having to crunch extensively, six days a week to meet tight deadlines. While this worked out well in the first Witcher game, the complexity involved in Cyberpunk 2077 made this culture extremely unsustainable. By 2015, senior developers began leaving and in some cases, like Konrad Tomaszkiewicz, they left to form their gaming businesses. The aggressive marketing had become too aggressive and left expectations for CD Projekt extremely high after eight years of the studio building the game's hype. As a result, testers and players reported many technical issues and bugs, which forced PlayStation to remove it from its store. It’s essential to track and understand these factors when investing in gaming studios, especially when a studio is concentrated on a few leading titles, as with CD Projekt. An investor can do this by speaking to current and past employees, reading and scraping data off game stores, and reviewing industry blogs and feedback from hobbyist reviewers.

zł m	**2012**	**2013**	**2014**	**2015**	**2016**	**2017**	**2018**	**2019**	**2020**	**2021**
Revenue	**164**	**142**	**96**	**798**	**584**	**463**	**363**	**521**	**2,139**	**888**
Cost Of Goods Sold	97	92	61	211	113	82	106	161	491	250
Gross Profit	**67**	**50**	**36**	**587**	**471**	**381**	**257**	**360**	**1,648**	**638**
Op. Cost	**39**	**37**	**28**	**163**	**167**	**140**	**144**	**165**	**489**	**370**
EBIT	**28**	**13**	**8**	**424**	**304**	**241**	**113**	**195**	**1,159**	**268**
EBIT Margin	17.2%	9.4%	7.9%	53.2%	52.0%	51.9%	31.0%	37.5%	54.2%	30.2%
EBIT growth	10.5%	(52.5%)	(43.2%)	5,475.5%	(28.4%)	(20.7%)	(53.2%)	73.6%	493.0%	(76.9%)
Debt/ Capital	3.3%	0.3%	0.4%	0.1%	0.0%	0.0%	0.0%	1.8%	0.9%	2.4%

As you see, revenues are lumpy in CD Projekt, like many gaming companies. After the initial release of the Witcher 2: Assassins of Kings in 2011, revenue declined by -41% between 2012 and 2014. The Witcher 3 was released in 2015 and you can see the bump in revenue in 2015.

Due to the lumpiness, it's important for studios to have minimal debt and this is something CD Projekt has done over the past decade. The balance sheet flexibility allows CD Projekt to make bold AAA investments without being too tied to finance repayments.

Information Technology

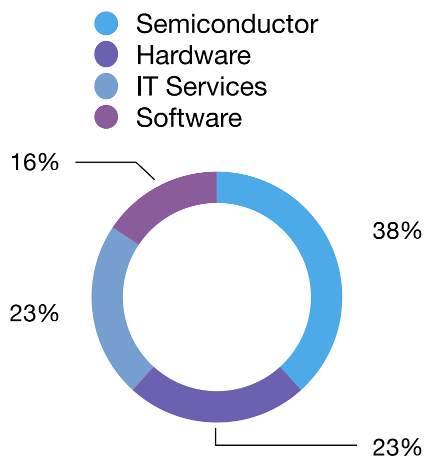
Outperformers: 115 companies

As we expected, information technology was the best performing industry (115 of 446 companies) despite being 12.7% of the proportion of globally listed companies. During our research, we were aware that the exceptionally high valuations in the information technology sector could lead us to wrong conclusions about outperformance; the industry ended the period valued at 27.6x earnings compared to the global index at 18.5x earnings.

That said, it would be unfair to tie the sector's performance to just valuation expansion alone. 39% of the sector's companies have an operating profit margin above 10%, compared to the 32% across all industries. From a growth perspective, the sector's outperformance is even more significant as 23.6% registered revenue and operating earnings five-year growth of 10% CAGR compared to the 17.4% registered across all industries. So it's clear that the information technology sector at least deserves a premium multiple relative to the broader market due to its profitability and growth.

We split the industry into four sub-segments;

- Semiconductors (44 companies)
- Hardware (27 companies)
- IT Services (26 companies)
- Software (18 companies)



Semiconductors, the second largest number of listed companies within IT, was the best performing sub-segment with 44 companies. The more interesting fact was that if we go back to 2002-2012, only one semiconductor company returned more than 1,000%. Semiconductors can be seen as the most cyclical sub-segment within information technology, with frequent boom and bust cycles.

When a new technology is introduced and becomes commercially available, like in the case of the PC, mobile phone, and the data centre revolution, semiconductors typically benefit due to their role in chip-making. The industry then raises capital expenditure and research & development budgets in response to the increased demand. During these periods of growing demand, as we saw during 2012-2022, the revenue and earnings of these companies increase, which drives investor interest in the sector.

Despite most semiconductor chip production occurring in Asia, seven of the ten largest outperformers were American, led by Nvidia in the graphic processing unit (GPU) segment, which returned 5,908%. Asia, however, dominated from a share price view; all but one of the industry's best-performing companies were from Asia. We explore the investment case for one of Japan's semiconductors success stories, Lasertec.

Hardware was another strong sub-sector, with electronic, instruments and component hardware companies producing the most outperformers. Thanks to its strong innovation competitiveness and export-based economy, Sweden was one of the leading countries in hardware companies. China also had four companies, with Sunny Optical Technology delivering the largest share price return of 5,146%. For many B2B businesses, the lines between the industrial and hardware sectors are increasingly becoming blurry, given the role “the industrial internet of things" now plays in factories and manufacturing plants. We also explore this theme in our HMS Networks cases study.

The phrase "Software is eating the world" was not exactly the case in public markets as it was the worst performing sub-sector within the information technology industry, with 18 companies. One reason for its underperformance has been the growth of the venture capital industry. Software companies are increasingly staying private, especially in developed markets, and when they go public, they tend to be already established. The US produced the most software outperformers, with three of the four American companies being among the largest software companies. While the software industry isn't the most obvious place to search for turnaround opportunities, some delivered remarkable turnarounds; an example was Adobe which we explored in our case studies.

IT Services are much smaller than the rest of the IT industry; only one of the 26 IT services outperformers ended the decade as a large cap company. India and Japan dominated the IT Sector industry, with each country having six outperformers. India is not a surprise given its 55% market share in the global

IT services sourcing industry. Indian companies like Mindtree, COFORGE and Mastek benefitted from its outsourcing industry and the growth of services like cloud management, digital automation and cybersecurity.

For our IT services case study, we looked at an outperformer from an unlikely country, Reply S.p.A in Italy and learn lessons on the consulting industry and valuations in IT.

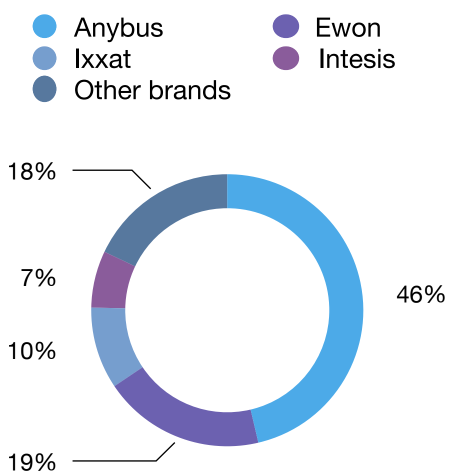
Case studies

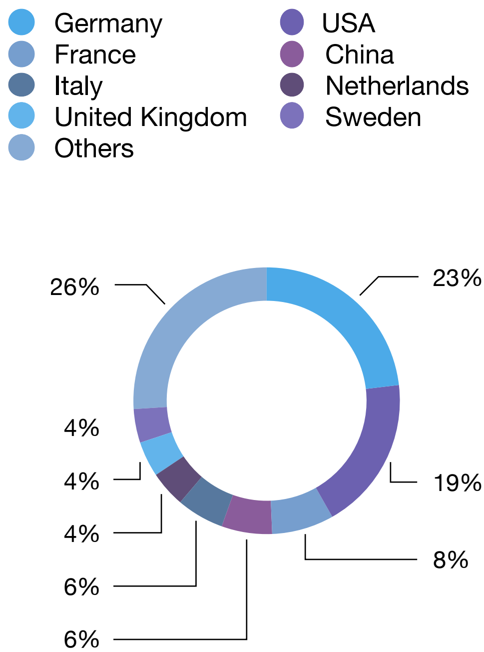
HMS Networks - Connecting the industrial world

Return: 1,421%

HMS, which means "Hardware Meets Software", was initially started as a student project at the University of Halmstad in Sweden by Nicolas Hassbjer and Staffan Dahlström (current CEO) with the idea of developing technology for measuring paper. The project later became a consulting business and then shifted into hardware manufacturing. This led HMS into the field of industrial communication and spurred the development of Anybus, its leading product that supports factory connectivity. As customers grew, HMS continued investing in its innovation and sales reach, expanding into new markets like France, China, and Japan.

HMS currently operates in three markets; industrial automation, remote monitoring and network monitoring via its four core brands (Anybus, Ewon, Intesis and Ixxat) and three member products from recent acquisitions (WEBfactory, Owasys and Procentec). Anybus is its leading brand, representing 46% of 2021 sales.
Anybus enables industrial devices to communicate with any industrial





HMS Network's sales by brand (left) and by geography (right) network (fieldbuses) or ethernet network, whether wired or wirelessly. The brand shaped HMS Network's "design-win" model, where HMS aims to win contracts with potential customers and integrate their devices into their product designs over the life span of manufacturing, which is often over many years. There are now 1,790 active design-wins supporting HMS growth.

Investment Case

HMS Networks transitioned from a one-dimensional industrial communication solutions provider into a multi-solution company with its acquisitions of Ixxat and Ewon in 2013 and Intesis in 2016. While we discuss these acquisitions in greater detail in the lessons segment below, it's important to highlight that the timing was near-perfect given the broader trends we have seen across the industrial sector.

Factories have become more specialised, increasing the pressure on operators to do more with fewer resources and automate where possible. HMS' Ixxat and Anybus include a portfolio of niche bridges, gateways and interfaces that support plant automation. Another critical theme contributing to the opportunities for HMS is globalisation's impact on plant connectivity. Before buzzwords like the industrial internet of things (IIoT), its product portfolio was well ahead of the industry curve through its remote solution tools in its Ewon division. Its industrial cloud, Talk2M, allows its 20,000+ customers to connect machines in a secure end-to-end cloud and provide users with access to live data from devices anywhere in the world via the Ewon eCatcher app. From a plant safety lens, devices like Ewon Cosy+, also support maintenance with remote troubleshooting, reducing the need for on-site travel for plant operators.

Beyond innovation and the growing IIoT trends, HMS followed the Swedish global growth strategy, ensuring that its sales and distribution teams were based and familiar with every key market. Sweden only represents 3.8% of sales while countries like Germany (23% of sales), the USA (19% of sales) and Japan (8% of sales) are among its top three countries by sales. Positioning sales reps and technical support teams in these regions supported its contract wins with clients via the design-win model.

Its acquisition and innovation-led growth strategy compounded revenue and operating earnings by 18% and 21% per year over the ten years, while multiples expanded from 3x EV/Revenue (16.4x EV/EBIT) in 2012 to 9.9x EV/Revenue (42x EV/EBIT).

Images: HMS Networks has a diversified product portfolio that serves its mission of increasing the productivity in industrial communication for customers. (company website)

Lesson

Like many diversified businesses, analysing their investment cases can become complicated due to the breadth of business and growth drivers, competitors and product/service applications. One of our lessons on investing in these diversified hardware businesses is to ensure that their many operations serve their central mission for clients. For HMS, this was improving industrial communication for clients worldwide. This mission was evident across its whole business from areas its portfolio of solutions expanded into, its acquisitions during the decade, the research and development approach, and even its sales and distribution culture. A risk management process should ensure that the mission, strategy and execution are consistent for diversified businesses of this nature.

Acquisition-led growth

Going back to 2012, HMS mainly relied on its Anybus division, and organic growth had compounded by 17% over the prior ten years. Management began noticing the increased demand for industrial technology devices and applications and it was clear to them that Anybus alone couldn't satisfy all customer needs in IIoT. M&A is a common path for hardware companies in these situations, given how enormous and fragmented the IT hardware industry is (there are twice as many globally listed hardware companies as software companies).

Every company HMS acquired in the following years, like the Intellicom in 2011, Ewon and Ixxat in 2013 and the more recent acquisition of subsidiaries like WEBfactory and Owasys are still focused on achieving HMS Network's mission, increasing the productivity in industrial communication for customers.

Some acquisitions also supported its already existing Anybus division. For example, management had flagged the growing role of Wi-Fi connectivity in factories, given the enrolment of 4G and the increased memory and speed capacity in devices. HMS later acquired a technology that supported wireless communication in 2014, and two years later, it launched Anybus Wireless Bolt, its first proprietary solution for wireless communication, which also won the best network technology by Automation Inside.

From a financing view, management also ensured they were financially prudent with acquisition purchase prices. The €32 million purchase of Ixxat was valued at 19x earnings, funded by debt HMS took on. Management ensured its cash flow covered the interest payments well and avoided the costly mistake of diluting existing shareholders to fund new acquisitions.

HMS Networks is not short of competitors like ProSoft, Hilscher, Moxa and Molex (owned by Koch Industries), but its product depth and customer-centric innovation-led strategy have allowed the group to stand out in the ever-competitive field of industrial communication.

Kr m	2010	2011	2012	2013	2014	2015	2016	2017	2018
Revenue	345	384	382	501	589	702	952	1,183	1,366
Cost Of Goods Sold	137	151	152	187	222	272	371	462	532
Gross Profit	208	233	229	314	367	430	581	722	834
Op. Costs	126	160	165	229	278	329	424	511	584
EBIT	82	73	64	85	89	100	158	210	250
EBIT Margin	23.7%	18.9%	16.7%	17.0%	15.2%	14.3%	16.6%	17.8%	18.3%
EBIT Growth	116.9%	(11.2%)	(11.9%)	33.1%	4.9%	12.4%	57.2%	33.3%	18.8%
EV/ Revenue	3.37x	3.18x	3.00x	3.56x	3.62x	4.08x	4.25x	5.27x	5.55x
EV/EBIT	17.35x	13.99x	16.53x	21.28x	21.46x	26.16x	32.02x	29.21x	30.90x

The acquisition of Ixxat and Ewon in 2013 and Intesis in 2016 where years HMS saw its fastest revenue growth. This is a direct impact non-dilutive acquisitions can have for shareholders and the acquisition-led strategy played a key role in its outperformance.

Adobe - A software turnaround

Return: 1,241%

Adobe is a diversified software company that operates in digital media and experience and publishing & advertising industries for business and consumer applications. It was founded in 1982 by computer scientists John Warnock and Charles Geschke. After leaving Xerox, they focused on developing the PostScript interpreter, which transferred graphics and text from the graphical computer to the laser printer.

Adobe delivered more groundbreaking products such as Adobe Illustrator and Adobe Photoshop, which redefined the quality and complexity of images, film, video and the web. Adobe Acrobat and the PDF also changed how we shared, delivered and received information. It also acquired other companies that complemented its offerings, such as Aldus Corporation and Macromedia.

Adobe later bundled up its many applications and transitioned from the licensed model into the subscription powered by the cloud-based Software as a service (SaaS) economy. Today, its business is split into two segments:

- Digital Media (76% of revenue): products that support the creation and publishing of content and documents.
- Digital Experience (24% of revenue): applications that support businesses with analytics, commerce and other key business functions

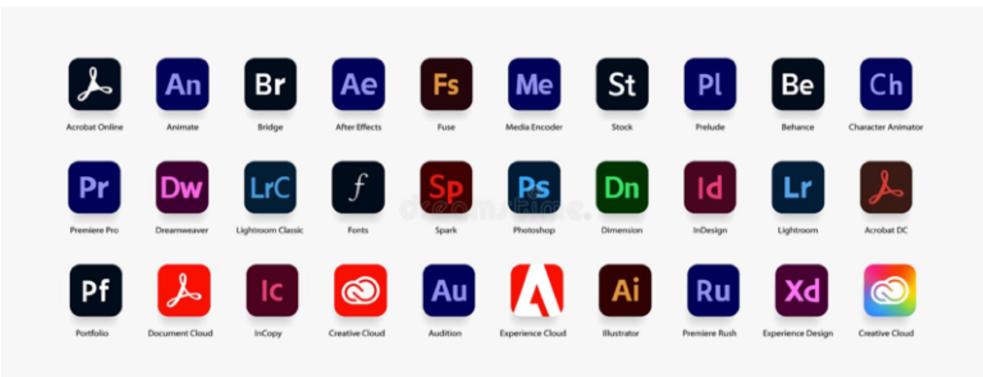


Image: Adobe's family of apps. (Company annual report)

Investment Case

While Adobe has always been at the forefront of how society utilises creative and design tools, its investment case has not always been promising. Between 2008 and 2015, Adobe only grew earnings by 4.4% CAGR, and debt/capital rose from 0% to 20% as it needed to defend itself from the tectonic shifts occurring in software.

Adobe traditionally relied on desktop applications with a licensing model with customers. Users paid for a perpetual license for various services and tools and gained access to them which worked well during the desktop age, given that desktops are immobile. But with laptops becoming ubiquitous and the internet becoming more accessible and widespread, software needed to shift from its one-off licensing model into a cloud-based subscription SaaS model where users can access the tools and software from anywhere for a monthly fee. For companies like Adobe, this was a challenge because its revenue and profits were certain to drop as customer payments became more spread over time rather than one fixed fee. Also, users could cancel at any point, so if Adobe's tools became uncompetitive, users could easily switch to rival products. There was also criticism from its loyal customer base, who raised concerns about the new subscription service model.

However, there were various benefits beyond the more predictable and recurring earnings the SaaS model brought to the industry. First, Adobe could deliver product iterations faster and directly without requiring users to re-download apps. Users could also become more aware of Adobe features beyond their packages, increasing the potential revenue per user in the longer term. Adobe could broaden its customer base beyond the traditional creative professional to regular internet users who may require only a few Creative Cloud solutions. Variable costs in delivering new licenses such as CDs, packaging and retailer contracts would drop given the more direct model the internet ushered for software companies like Adobe.

The transition also required a culture change, given the SaaS model's emphasis on innovating and delivering products better and faster to the user. Adobe had to listen more to customer needs and build and iterate their services better to support customer demands. There was also a need for newer cloud-based technology at the backbone of Adobe, such as data security and disaster recovery.

As you see, the shift from licensing to SaaS is much more complex than just changing the pricing model, but it paid off for Adobe's bottom line. In 2021, Adobe earned its best operating and net income margin since 2005. Revenue and earnings picked up again after 2015, and Adobe has since compounded both by 22% and 32%, respectively. The more predictable subscription model has also allowed both management and markets to predict Adobe's future better, and as a result, its multiples expanded from 3.7x EV/Revenue (13x EV/EBIT) in 2012 to 12.1x EV/Revenue (38.7x EV/EBIT) in 2022.

Lesson

For software companies to stay relevant for decades, it requires going through periods of self-disruption. While Adobe did not change its purpose in design, creativity and supporting the future of work, it needed to change how it delivered its products to consumers by embracing the tectonic shift in technology, such as the growth of mobile computing, the internet, the creative economy and the SaaS model. Not every company successfully transitions its business model like Adobe did and there are a few lessons here.

These transitions, which we call transitional turnarounds, require a few things. First, transitional turnarounds need to move with the wind. By this, we mean the rationale behind the changes is due to macro, technological or behavioural forces occurring beyond the company's control. For Adobe, this was the growth of mobile computing, the increasing role of the internet and its effect on how we do things. Second, management needed to be bold with decision-making and sometimes non-consensus changes. There's an advantage when the CEO is the founder or majority shareholder, but in Adobe's case, Shantanu Narayen was neither and showed that owner-oriented managers could also be non-founders.

Finally, transitions need to be made with all stakeholders considered. For Adobe, this was extremely important because it eased tensions between its shareholders and core customers. Shareholders were initially worried that switching from licensing to SaaS would lead to lower margins, but Adobe had supported this move with its financial projections in its 2012 shareholder presentation. Despite earnings declining by -63% over the next two years, its share price more than doubled. Sceptical customers were also given a choice to either stay with the licensing model or switch to the subscription model, which eased tensions. Within the first few months, almost 300,000 people had switched to the subscription offerings.

By the end of 2012, Adobe was already beating its initial cloud projections on all fronts. Even if you waited for the changes to show up on its financials, as in 2015, you would have still seen a return of 340% (28% CAGR).

$ m	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
Revenue	3,800	4,216	4,404	4,055	4,147	4,796	5,854	7,302	9,030	11,171
Cost Of Goods Sold	404	438	484	587	622	744	820	1,011	1,195	1,673
Gross Profit	3,397	3,778	3,920	3,469	3,525	4,051	5,035	6,291	7,835	9,498
Op. Costs	2,380	2,581	2,743	3,020	3,092	3,148	3,541	4,123	4,995	6,230
EBIT	1,016	1,197	1,177	449	433	903	1,494	2,168	2,840	3,268

Revenue	29.0%	11.0%	4.4%	(7.9%)	2.3%	15.6%	22.1%	24.7%	23.7%	23.7%
EBIT Growth	38.9%	17.8%	(1.7%)	(61.8%)	(3.7%)	108.8%	65.4%	45.2%	31.0%	15.1%
EBIT Margin	26.7%	28.4%	26.7%	11.1%	10.4%	18.8%	25.5%	29.7%	31.5%	29.3%
Return on Capital	10.1%	10.7%	9.5%	3.4%	3.3%	6.6%	10.2%	13.8%	14.9%	14.5%

EV/ Revenue	4.78x	3.51x	3.40x	5.02x	7.78x	8.87x	8.84x	10.55x	13.93x	13.75x
EV/EBIT	19.68x	12.52x	12.22x	27.07x	74.07x	65.91x	41.19x	38.42x	44.37x	46.83x

Adobe's operating profit margins fell from 26.7% to 10.4% between 2010 to 2014. In most transitional turnarounds, companies need to make two steps back to move forward for the long term, and if you only looked at the financials without considering the broader picture and story, you would have thought Adobe was declining.

Its business was actually getting better, given that revenues were becoming less cyclical and more predictable, and its product portfolio had become more organised to serve a larger audience.

After 2014, we can see the earnings bump as its EBIT doubled in 2015. The EV/EBIT of 74x would have made Adobe look expensive but compared to its real potential, it was cheap.

Reply S.p.A - Hidden gems in unlikely areas

Return: 2,796%

Reply is an Italian network of companies that specialise in consulting, system integration and digital services and provide digital communication and media solutions. Its current Chairman, Mario Rizzante, founded Reply in 1996 to assist various clients with application and web integration needs during the internet boom.

Initially, Reply focused on just the industrial and telecommunication sectors, but today, clients range across all industries. Manufacturing and retail is currently its largest sector (34% of sales), followed by financial services (30% of sales) and telecommunication and media (21% of sales). Their original thesis was quite simple. Mario Rizzante believed the technological revolution would transform how we did things, from how factories operated to how we communicated with one another. The struggle for a consulting company is that no one consultant or single company can solve every issue. But a network of companies can.

Reply owns and has acquired dozens of companies specialising in various niches within technology services. In 2021 alone, Reply acquired five companies, such as Enowa, which specialises in consulting and solutions with a focus on SAP products, Spur Group, an American sales and marketing consulting firm.

Technology consultants are usually profitable and asset-light and consultants like Reply employ various revenue models, such as project-based work where a client may need Reply consultants to work in-house on some problems for a fixed price or contract per-unit model, which is dependent on the time or intensity of the work. Consultants like Reply also own various in-house technologies that support client operations for a fee.

Investment Case

Reply is one of the few companies we think has had an attractive investment case since its founding. Since going public, Reply has been profitable yearly and achieved double-digit operating margins every year except in 2003. It only missed year-on-year operating profits growth twice, in 2003 and 2009.

But how have they achieved such a long-term track record of profitable growth?

IT consulting is not the most obvious place to look for companies that can compound earnings. Compared to software and hardware, it has largely been neglected by investors despite also benefitting from technology shifts. The gap created low multiples in companies like Reply that could grow organically and through acquisitions of companies in the $53 billion IT consulting industry. In its early days, Reply had already built several proprietor software like Click Reply and People&Web Reply. Acquiring peers also accelerated the overall group's expertise and expanded Reply into more geographies as it now has over 10,500 employees worldwide.

Reply has also adapted to technology and new paradigms in various ways. An example was the rise of China as a global powerhouse. As European companies, from fashion and consumer goods to automotive and industrial companies, aimed to better position their operations in China's growth, Reply developed "China Beats", the marketing and social intelligence platform. The platform supports its clients in understanding the Chinese market via a broad data ecosystem pulled from China e-commerce platforms, search engines and Sina Weibo. Recent developments in the metaverse have also opened Reply to new opportunities in supporting clients in areas such as 3D modelling, avatar creation, and NFTs via its Infinity Reply and Reply Game Studios division.

Images: Reply's Area 42 space for metaverse workshops (left) and a presentation by its China Beats team (right). Reply responds very quickly to the changing technological needs of its clients to ensure its solutions are competitive and relevant. (Reply laboratories)

Ensuring its company network has the right partners and qualifications allowed Reply to build and tailor its expertise for clients, which is unusual at larger consulting firms. Reply has earned gold certification with big technology cloud-based companies like Adobe, Google, Amazon Web Services, Microsoft, Salesforce, and Oracle.

These factors drove its revenue and operating profits by 13% and 16% per year, over the past ten years. As the group continued to grow and diversify its capabilities, its multiples expanded as EV/Revenue increased from 0.4x (3.6x EV/EBIT) in 2012 to 2.6x (18.5x EV/EBIT) in 2022.

Lesson

Italy is not the most obvious place to search for multibaggers in information technology, and neither is IT consulting within information technology. Reply defied the odds and has achieved steady and profitable growth since inception. This was achieved by being more than just your regular consultant; launching hundreds of products, acquiring hundreds of companies and investing in proprietary software and technology.

Looking at their annual report from 2002, Mario Rizzante and his team had already envisioned a world where technological advancements would disrupt various industries and also noticed that European companies would need support to keep up with the pace in North America. This slower pace of innovation in Europe eventually became a problem, and many investors overlooked European technology companies. For hidden companies like Reply, the issue in Europe became an opportunity for them, but investors neglected them. Its EV/EBIT fell to just 3.4x in 2012 despite its solid growth and profitability. The lesson here is simple; because everyone abandons a sector or region for fundamental reasons, it doesn’t mean you should because there could be hidden gems like Reply that benefit from the issues highlighted.

€ m	2011	2012	2013	2014	2015	2016	2017	2018	2019
Revenue	447.5	506.4	574.5	649.0	721.2	800.3	902.1	1,050.8	1,205.7
Cost Of Goods Sold	385.0	435.6	488.7	552.6	612.1	685.2	768.4	900.3	1,009.3
Gross Profit	62.4	70.8	85.8	96.3	109.1	115.1	133.7	150.4	196.4
Op. Costs	12.7	13.3	14.6	15.3	17.1	20.4	22.8	19.5	42.4
EBIT	49.8	57.6	71.2	81.1	92.0	94.7	110.9	131.0	154.1

EV/Rev	0.45x	0.39x	0.65x	0.94x	1.32x	1.50x	1.85x	2.09x	1.99x
EV/EBIT	3.92x	**3.36x**	5.59x	7.74x	10.53x	11.90x	15.09x	17.03x	16.26x

Despite its 11% operating profit margin and 17% annualised operating profit growth, Reply was valued at just 3.36x EV/EBIT by the market. If we applied our EV/EBIT / growth rate rule, Reply could appreciate by 400% on just multiples revaluation alone.

As you see, Reply has been a consistent grower thanks to diversifying its solutions for clients and acquiring other companies into its network.

Lasertec Corporation - A 100-bagger journey

Return: 10,225%

Lasertec Corporation is a Japanese semiconductor equipment company that provides inspection and measurement solutions based on applied optics. Lasertec was founded in 1960 and was initially called NJS Corporation. Its first original product was the LSI photomask inspection system launched in 1975, which was the world's first and helped the semiconductor industry achieve higher defection detection rates while also reducing inspection time rates to 1/10 of what it previously was. In 1986, the company changed its name to Lasertec Corporation, which coincided with its entry into the Flat Panel Display (FPD) photomask inspection industry.

Today, Lasertec has three core product systems;

- Semiconductor inspection systems (EUV, DUV and Wafer)
- FPD photomask inspection
- Laser microscopes and lithium battery inspection

For our analysis, we will focus mainly on the first segment, which has been the key driver of Lasertec's performance in more recent years.

Investment Case

The semiconductor manufacturing process is very complex and sophisticated, involving many different inputs in making a single chip. For simplicity, we can think of Lasertec’s role in the semiconductor process as a factory inspector who goes around plants to ensure operations are safe, of quality and within compliance. For decades, Lasertec has developed highly complex inspection systems across the EUV and wafer manufacturing process, but it is really its EUV photomask inspection systems that has driven sales and profits in more recent years.

Unlocking the EUV opportunity

Many products, from smartphones to gaming consoles and electronic devices, rely on the lithography process, which involves using light to pattern thin films over a wafer. In previous years, the industry relied on the DUV process, which had a wavelength of 193nm. ASML later created the EUV lithography process, which had a wavelength of 13.5nm, 14 times shorter. The shorter wavelength allows the production of more transistors on a single chip, thus boosting information processing speed and capacity in devices and applications.

These EUV lithography tools are made by ASML, a Dutch semiconductor company and its first set was shipped in the early 2010s. Lasertec began working on how it could create inspection tools for the new generation EUV lithography process. They later announced they could finally commercialise their EUV mask blank inspection system in 2017. For chipmakers, Lasertec's invention ultimately improved production yields and profitability and became critical for the industry.

Lasertec soon received orders from leading-edge logic foundries like TSMC, Samsung and Intel as they transitioned into making 7nm chips. As these logic foundries progress from 7nm to 5nm and 3nm, the number of masks needed increases, which also benefits Lasertec and Lasertec is currently their sole supplier. In recent years, its clientele has grown beyond logic foundries and into DRAM manufacturers like SK Hynix in South Korea. Lasertec now plays a vital role for these companies via its mask inspection tools and has won various supplier of the year awards from important industry companies like Intel Corporation.

These orders have been instrumental for Lasertec. Between 2012 and 2016, its operating earnings grew by 10% per year. In the four years after 2017, its earnings compounded by 51% CAGR. As earnings grew and its role in the EUV value chain increased, its coverage in sell-side reports increased, and Lasertec saw its multiples expand from 1.3x EV/Revenue (6.4x EV/EBIT) in 2012 to 19.9x EV/Revenue (67x EV/EBIT) in 2022. Debt also reduced from an 11% debt/capital ratio to a debt-free balance sheet.

Lesson

Lasertec was the best performing company in the semiconductor industry with a 10,226% return or 58.8% CAGR over the ten years. What is particularly interesting with Lasertec from a share price return view is that its stock price barely moved for years. ¥100 invested in Lasertec's stock in 1992 would give you ¥100 by 2012, 30 years later. One reason was that Lasertec, like many Japanese technology companies, went public during the Japanese assets bubble when Japanese valuations were highly elevated. Another reason is that the semiconductor industry is quite cyclical. During good years, investors think the sales boom will last forever and start assigning higher multiples to them, only for the imminent slowdown in sales to happen.

Beyond its cycles, the semiconductor industry also provides another lesson on value chain investing. One may think investors need to predict that companies like Lasertec will invent something revolutionary to succeed as an investor, but this is not necessarily true. What many Lasertec investors that joined shareholders in 2017 did was they understood the broader EUV value chain and studied how important ASML's discoveries and lithography system became for the foundry industry. ASML had even published a presentation (see below) on companies that will benefit from the growing EUV ecosystem.

Image: A slide from ASML's presentation on beneficiaries of the broader EUV ecosystem. (ASML IR presentation)

Companies like Lasertec and Applied Materials, another outperformer, were mentioned several times in different applications, which signalled there could be something interesting in their technology. ASML even mentioned Lasertec's mask patterning for defect review will go on to be important for 5nm and 3nm developments, providing a longer runway for sales.

While you didn't need to predict this, you needed to understand the EUV value chain and identify which areas had potential moats and the implications for future demand. Another Japanese semiconductor outperformer was Tokyo Electron, a developer of coaters used in silicon wafer production. Tokyo Electron similarly benefitted from the EUV technology and saw a rapid rise in its earnings after 2017. Suppose you needed two years to understand the value chain and missed the initial 300% return between 2017-2019, you could have still gained 1,000% in the following period on a Lasertec investment. Inventions like EUV lithography come every now and then, and their beneficiaries and broader ecosystem should be studied closely if the goal is outperformance. The best opportunities are often not too far from these fast-growth themes; we similarly saw some of the best global performers in other fast-growth and game-changing industries like cell-based therapy and solar energy.

¥ m	2013	2014	2015	2016	2017	2018	2019	2020	2021
Revenue	11,397	13,607	15,187	15,291	17,369	21,252	28,769	42,572	70,248
Cost Of Goods Sold	6,042	7,042	6,709	6,404	7,815	9,252	12,853	19,581	33,296
Gross Profit	5,355	6,565	8,478	8,887	9,554	12,000	15,916	22,991	36,952
Op. Cost	3,205	3,467	3,755	4,459	4,593	6,315	7,975	7,929	10,878
EBIT	2,150	3,098	4,723	4,428	4,961	5,685	7,941	15,062	26,074

Revenue	(7.6%)	19.4%	11.6%	0.7%	13.6%	22.4%	35.4%	48.0%	65.0%
EBIT Growth	(30.4%)	44.1%	52.5%	(6.2%)	12.0%	14.6%	39.7%	89.7%	73.1%
EBIT Margin	18.9%	22.8%	31.1%	29.0%	28.6%	26.8%	27.6%	35.4%	37.1%
Return on Capital	8.0%	11.2%	15.8%	13.2%	13.4%	13.8%	17.1%	26.8%	34.5%

EV/Rev	1.72x	1.99x	1.79x	1.92x	4.37x	7.37x	8.75x	19.21x	29.57x
EV/EBIT	10.78x	26.22x	6.08x	6.84x	14.05x	26.72x	31.69x	56.24x	82.29x

New inventions can sometimes accelerate growth and profitability, as with Lasertec post-2016. Operating profits grew almost five-fold between 2016 and 2021 due to its opportunity in EUV mask inspection.

Valuations got ahead of themselves in 2021 and shares have fallen by almost -50% in the first five months of 2022.

Healthcare

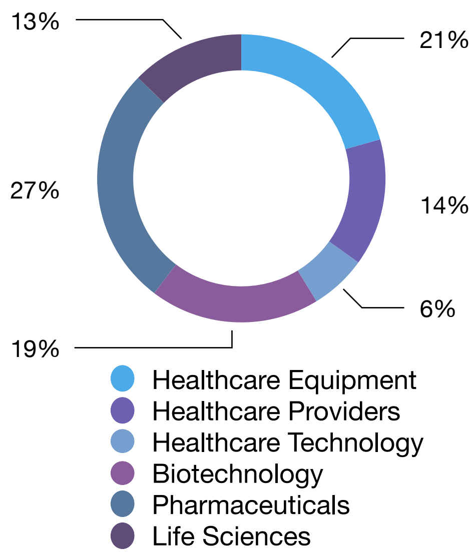
Outperformers: 63 companies

Healthcare was the second best performing sector with 63 companies (14.1% of all outperformers) and was among the four overrepresented sectors relative to its market listing weight (9.4% of publicly listed companies.

The recent pandemic has likely accelerated both fundamentals and valuations for the healthcare industry. That said, if we adjust the period to 2009-2019, prior to the pandemic, the healthcare industry had an even higher representation of 15.6% (versus 14.1%) of all outperformers. The healthcare index has also outperformed the broader MSCI World Index in the past ten years and to gain a detailed perspective on if the valuations are justified, we need to consider the broader healthcare innovations, advancements and technologies, and their impact on the sector's scale, growth and future profitability.

We split healthcare into six segments;

- Healthcare equipment and supplies (13 companies)
- Healthcare providers and services (9 companies)
- Healthcare technology (4 companies)
- Pharmaceuticals (17 companies)
- Biotechnology (12 companies)
- Life sciences tools and services (8 companies)



Pharmaceuticals and the healthcare equipments segments produced the most opportunities in the healthcare industry. Both are also the largest segments within healthcare explaining their outperformance relative to the rest. The pharmaceutical industry was led in market capitalisation by two Chinese companies, Zhangzhou Pientzehuang Pharmaceutical and CSPC Pharmaceutical Group. Zhangzhou Pientzehuang is an SOE and the sole maker of Pien Tze Huang, a traditional Chinese herbal drug used as an antiinflammation and pain relief, and has been in use since the Ming Dynasty in the 1500s. Whereas, CSPC manufactures active pharmaceutical ingredients (API) and formulations of over 1,000 products. Both compounded earnings by more than 25% CAGR over the decade.

India had the largest representation in the pharmaceutical industry with six of the 17 companies and we explore Abbott India to understand what is driving the Indian pharmaceutical industry.

Aier Eye Hospital, China's largest eye care chain with over 600 hospitals led the healthcare provider sub-segment in both share price performance and market capitalisation. Aier Eye care was not the only eye care chain, Universal Vision Biotechnology in Taiwan similarly benefitted from the fast-growing laser eye surgery in Asia. Overall, the healthcare provider and services segment had nine companies from broadly diversified countries.

The healthcare technology industry was only recently established and has just 124 companies listed globally with a market capitalisation greater than $50 million, compared to 1,100 companies in healthcare equipments, for example. The segment also contributed the least within the overall healthcare industry with just four companies. For our case study, we explored one of the top three largest healthcare technology companies, M3 to gain some perspective on how the sub-sector is changing how healthcare is delivered to consumers.

The US led the healthcare equipment thanks to both diabetes system providers, Dexcom and Insulet. Both companies recently partnered to integrate the Dexcom G6 and Insulet's Omnipod to support the more than 400 million people living with diabetes.

The Nordic countries except Norway also had some representation in the equipment market and Finland's Revenio Group was the best performing company with a total return of 3,925% thanks to its iCare ophthalmic diagnostics device used in detecting, screening and monitoring glaucoma, diabetic retinopathy and macular degeneration.

Both Biotechnology and life sciences have seen tremendous innovation from genome sequencing and cell-based therapy to the role artificial intelligence plays in research and development, diagnostics, delivery and monitoring. Together, both industries had 20 companies in the subset group with all but one coming from developed countries. The US alone represented almost half of the companies across both industries with Thermo Fisher Scientific, the supplier of scientific instruments and consumables, being the largest. While companies like ChemoMetec, Biotage, Sartorius and Lonza Group were from European countries, each also had the US as their largest market. We analysed how the progress in cell-based therapy transformed the applications and growth potential of ChemoMetec, the Danish cell-counting company.

Overall, the healthcare industry had many strong companies with growing competitive advantages. With the growing role technology plays in the industry, we are likely to see even more outperformers in future years given the potential for scale and improved profitability in both cost and time savings.

Abbott India - India’s pharmaceutical growth

Return: 1,170%

Abbott Laboratories established its Indian subsidiary during the 1910s to expand its global reach into the South Asian market. The company was incorporated in 1944 as Boots Pure Drug Company Limited and after several name changes, it became known as Abbott India in 2002. Today, Abbott India is one of India's fastest growing pharmaceutical companies, with over 400+ branded generic pharmaceuticals in 80% of therapy areas, serving the nation's 500,000+ pharmacy market. Abbott India doesn't provide a percentage breakdown of its segments, but we can segment its divisions into:

- Women’s health: menarche, pregnancy and menopause support. Key products include DUPHASTON and Duvadilan.
- Gastroenterology: different areas of gut care, treating constipation, irritable bowel syndrome and pancreatic exocrine insufficiency. Key products include Ganaton and Cremaffin.
- Multi-speciality: products that cater to a wide range of conditions like headache, insomnia or overall well-being. Key products include BRUFEN and CONTRAMAL.
- Metabolics: offers treatment for hypothyroidism.
- Central nervous system (CNS): products help people better manage their acute and chronic problems in areas like migraine, epilepsy and vertigo. Products include Lacoxa and Levilex.
- Vaccines: the portfolio addresses influenza, typhoid, diarrhoea and hepatitis A. Products include Influvac and Roatsure.
- Consumer health: they support everyday issues like Digene in bloating from excessive gas.

Image: 16 of Abbott India’s top 20 brands rank as either number 1 or 2 in their respective markets. (annual report)

Abbott India's portfolio, as you see, is pretty broad, and in most of their key market segments, they maintain either a number 1 or 2 market position versus peers. For example, Abbott's Duphaston has a 75% market share in treatments for cycle disorders in women's wellness. Thyronorm in the metabolics division continues to maintain its market leadership and has achieved further gains in India's tier 2 and 3 cities.

Investment Case

India's role in pharmaceutical and generic drugs has substantially increased in recent years. The industry supplies 50% of the global demand for various vaccines, 40% of the generic drug supply in the US comes from Indian plants, while 25% of all medicine in the UK comes from India. Over the last two decades, the industry has experienced a tenfold growth and has further grown its position in the lower-margin, generic drug market; India ranks third globally in production by volume but 14th by value.

The industry's domestic and export market growth can be attributed to many factors shared by the public and private sectors. From an export view, the government increased its allocation to support contract manufacturers and attract multinational companies into the country. From a domestic market view, efforts by the Indian government go back to the formation of the National Health Policy of India (NHP) in the 1980s and today, the scale of the resources dedicated to healthcare is much larger. India recently launched the world's largest health insurance support in 2018, called the Ayushman Bharat initiative, which aims to provide free access to health insurance coverage for low-income earners (500 million people) in India. In the private space, pharmacy chains like Apollo Hospitals and MedPlus, representing 5% of the Indian retail market, have expanded aggressively, boosting supply capabilities and access to drugs manufactured by pharmaceuticals like Abbott India. The Indian wealth creation and health awareness have also increased the branded generic segment, which accounts for 80% of the retail market.

Abbott India has always been a consistent grower; between 2001-2011, revenue compounded by 16% per year while operating earnings compounded by 10% per year, but its growth sped up during the past ten years, a period operating earnings compounded by 20% per year. The reasons for this growth are twofold; product innovation and improved product communication.

Innovation

Abbott India has a structural advantage over domestic peers due to the global Abbott scale. The Indian subsidiary has increasingly become an important innovation hub for Abbott, and the group continues to allocate more resources to its Mumbai offices. In 2016, the parent company announced that Abbott India would double its local scientific capacity in formulation development and packaging technologists. The focus on these areas came from a realisation that its customers were very different and products needed more tailoring to local demands. An example of one of its domestic innovations is the dual-chamber container for antibiotics. Unlike dry-suspension medicines, the dual-chamber containers do not require water to be added, and the powder-mix and liquid packs can last longer.

Product communication

Abbott India realised price controls were likely to be under more pressure after the Drugs Prices Control Order (DPCO) in 2013 and then looked more towards volume rather than pricing power for growth. Abbott India improved how it communicated and engaged with Indian consumers via its marketing campaigns and partnerships to drive awareness. Campaigns like ConstipationConversations and Thyroweight were well received by the public and each reached millions of Indians via social media and TV adverts. The Thyroid campaigns have been particularly positive (11% of the Indian population suffers from thyroid disorders) and screening and awareness numbers saw an uptick during the decade. Abbott's Thyronorm brand now has a 52% market share in the country.

The improved relationship and feedback loop with its customers has also allowed Abbott to respond faster to demands and changing markets. In 2017, Abbott launched 21 products, compared to 13 launched in 2011, and management attributed the product portfolio growth to its improved marketing capabilities.

As a result of these factors, revenue and operating profits compounded by 11% and 20%, respectively, and its multiples also expanded from 1.8x EV/Revenue (15.6x EV/EBIT) in 2012 to 7.3x EV/Revenue (35.1x EV/EBIT) in 2021.

Lesson

While company-specific drivers supported Abbott India and the rest of the Indian pharmaceutical industry's outperformance, broader macro and industry policy also influenced their earnings growth. Every top ten Indian pharmaceutical company except Dr Reddy's Laboratories compounded both revenue and operating profits by more than 10% per year and six companies went on to become outperformers, producing returns greater than 1,000% over the ten years. It's often common for stock pickers to select companies with little macro or "government policy" risk but doing this in pharmaceuticals is incredibly challenging given the role policy plays in R&D focus, pricing and product strategy for pharmaceuticals. To have spotted the growing opportunity in the Indian pharmaceutical industry, investors would have needed to understand the broader industry forces driving the sector's domestic growth and export opportunities, from market reforms to pricing and production support policies.

The government mandated a 10.1% price reduction across some of the portfolio of brands in Abbott's vaccines and speciality care divisions. This led to an initial pessimistic market reaction, but as we have learned, good management teams find solutions to problems and in Abbott India, management steeped up other areas for growth like its outreach strategy, innovation focus to grow product portfolio and its marketing to compensate for the reduction in pricing.

Developed market parent, emerging market subsidiary

A few global conglomerates like Abbott, British American Tobacco, Colgate, Nestle and Unilever list their subsidiaries in emerging markets. In many cases, as with Abbott India, they grow faster and earn a better return on capital than their parents. There are many reasons why these companies list their subsidiaries. Some typical reasons include meeting local expectations or laws around foreign ownership, improving capital constraints with taking money in/out of the country and improving the liquidity for shares for local investors.

There are many ways these subsidiaries capitalise on the parent company to achieve advantages against domestic peers and these must be considered during competitive analysis. For Abbott India, these benefits played a pivotal role in its outperformance. In 2009, Abbott acquired Solvay SA's drug division and one of the synergies highlighted was the integration between Abbott India and Solvay India. The parent company also allocated more global resources towards India as it scaled its R&D and portfolio during the decade.

₹ m	2014	2015	2016	2017	2018	2019	2020	2021
Revenue	18,694	22,893	26,145	29,026	32,985	36,786	40,931	43,100
Cost Of Goods Sold	10,876	13,207	14,998	17,198	19,122	20,975	23,252	24,003
Gross Profit	7,818	9,686	11,147	11,828	13,863	15,811	17,680	19,097
Op. Cost	5,666	6,646	7,611	7,969	8,727	9,889	10,625	10,424
EBIT	2,152	3,040	3,536	3,859	5,136	5,923	7,055	8,673

EBIT Margin	11.5%	13.3%	13.5%	13.3%	15.6%	16.1%	17.2%	20.1%
EBIT growth	16.3%	41.3%	16.3%	9.1%	33.1%	15.3%	19.1%	22.9%

EV/ Revenue	2.35x	3.90x	3.55x	2.92x	4.00x	4.84x	7.66x	8.00x
EV/EBIT	19.12x	29.58x	26.29x	22.03x	25.64x	29.97x	42.85x	40.44x

Abbott India's profits grew faster than revenue due to the efficiencies gained in delivering products to customers from its improved marketing and sales channels, to its various partnerships with pharmacies in metro cities and more recently, tier 2 cities.

M3 (Japan's leading healthcare technology platform)

Return: 1,186%

M3, which stands for "Medicine, Media and Metamorphosis", is a Japanese medical technology platform for healthcare professionals founded in 2000 by its current president, Itaru Tanimura, after a 12-year career as a business consultant. M3 initially started with the MR-kun service, a communication tool connecting doctors with medical representatives from pharmaceutical companies to aid sales.

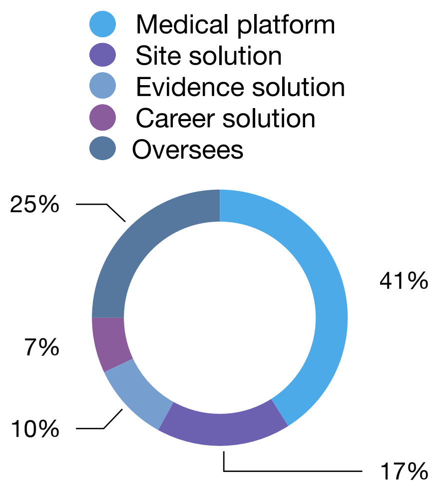
After the launch of MR-kun, M3 launched and acquired a wide range of technology platforms in the healthcare industry. For example, Research-kun helped doctors publish and share research via the internet. There was also M3MT which supported medical companies with marketing, and M3 CAREER, which allowed doctors with recruiting and HR support. By 2008, M3 had more than 390,000 medical professionals using its various platforms worldwide.

M3 also has a venture fund that supports its pipeline for future acquisitions or passive investment companies. Some examples are Mebix, a provider of specialised support for clinical research from statistical analysis to support in drafting articles and Medlive, a platform similar to M3 but for the Chinese market.

Today, M3's many divisions are split into four main segments and then its overseas business;

- Medical platform (41% of revenue)
- Site solutions (17% of revenue)
- Evidence solution (10% of revenue)
- Career solution (7% of revenue)
- Overseas and others (25% of revenue)

Sony currently owns a 34% stake in M3 Japan.



Investment Case

M3, at first glance, may seem like a complex web of different businesses, but at its core, it is simply a platform that solves problems for healthcare professionals.

At the time of M3 founding in 2000, Japan was the second largest healthcare market and with an increasingly ageing population, it was clear more resources would be needed in various healthcare fields, from diseases more prone to the older generation to care homes and hospice industry.

Itaru Tanimura, M3's founder, realised how much time and effort an internet platform could save doctors trying to collaborate on research and the efficiencies a platform could have on the sales process between pharmaceutical reps and doctors in Japan. M3 began addressing these issues via its first portal, which was like a combination of a google search engine and LinkedIn.

At the top of the M3 portal, doctors could discover medical news, followed by a search engine tool for medical research and partner company overview. On the right-hand side of the portal, one can upload or find career opportunities that partner firms have uploaded. The two-way communication platform has network effects; the more doctors join and publish research on M3, the more valuable M3 becomes to its users.

Its acquisition strategy also proved to be a success as it gave M3 a solid pipeline for further growth and development in its operations beyond Japan. In China, M3 owns a 29% stake in Medlive, China's largest physician platform, with a 21% market share in the second largest healthcare market globally. In the UK, M3 also own Doctors.net.uk, which is the UK's largest network with more than 240,000 doctors. In the US, M3 also owns MDLink, which serves as a Telemedicine platform that connects doctors with patients and broadens M3's offerings into the B2C space. Today, more than 6 million doctors worldwide are connected via M3's family of platforms.

M3 was already profitable within its first couple of years and earned an operating profit margin of 29%. Since then, its revenue has never grown slower than 15% year-on-year, while its operating profit has increased yearly since going public. Its multiples expanded from 8.6x EV/Revenue (20.6x EV/EBIT) in 2012 to 11.9x EV/Revenue (38.1x EV/EBIT) in 2022.

Lesson

Between 2005-2012, M3 returned 0% despite its debt-free balance sheet, 40% + operating profit margin, and annualised growth of around 30%. The poor share price return was due to its valuations; the market valued M3 at a 250x P/E ratio!

There are two lessons here. Every business has a price, no matter how strong its fundamentals and growth potential are. Two, whenever a company gets too expensive, keep it on an expensive list and watch it periodically for a potential decline in valuations. It is easy to forget about a company you may have once concluded as too expensive. Many investors likely did this, forgetting M3 existed and missing the following share price run after 2012.

Healthcare technology platforms can sometimes be challenging to understand without industry insights; non-medical practitioners can't join M3. For companies like M3, it is always worth meeting and interviewing some of their users to see how it achieves the four critical goals for any Medtech platform;

- Better results
- Cheaper than previous methods
- Saves time
- Increased accessibility

For M3, the platforms certainly achieved all four for doctors and medical practitioners. For example, the Research-kun portal reduced the time for the average physician survey from 10 weeks to just three days, while the average cost fell by half when compared with traditional alternatives. Achieving these goals is crucial to success for all Medtech investment cases.

Finally, transitioning beyond the first product or application while maintaining the same purpose is crucial in healthcare investing because of how difficult building moats and competitive advantages are; this was something most healthcare outperformers achieved. While M3 still focuses on its purpose of using the internet to improve the efficiency and quality of healthcare, M3 was aggressive with developing its apps into more areas it could support healthcare professionals and with acquisitions of other technology platforms beyond Japan. The diversification allowed M3 to defend itself against peers and the broader Big Tech peers.

¥ m	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021
Rev	19,040	26,007	36,887	51,346	64,660	78,143	94,471	113,059	130,973	169,198
Cost Of Goods Sold	4,781	7,609	11,899	20,499	26,970	32,103	40,722	49,216	58,086	65,798
Gross Profit	14,259	18,398	24,988	30,847	37,690	46,040	53,749	63,843	72,887	103,400
Op. Cost	6,611	9,129	12,680	15,552	18,088	22,161	26,713	36,044	38,435	44,562
EBIT	7,648	9,269	12,308	15,295	19,602	23,879	27,036	27,799	34,452	58,838
EBIT Margin	40.2%	35.6%	33.4%	29.8%	30.3%	30.6%	28.6%	24.6%	26.3%	34.8%
EBIT Growth	26.8%	21.2%	32.8%	24.3%	28.2%	21.8%	13.2%	2.8%	23.9%	70.8%
EV/Rev	9.87x	12.75x	13.76x	15.18x	14.95x	12.61x	14.26x	12.53x	26.12x	30.00x
EV/EBIT	24.60x	35.66x	40.92x	49.82x	48.70x	40.18x	48.93x	49.39x	**97.03x**	**91.14x**

Since going public, M3 has been a stable, profitable and growth compounder.Revenue grew eight-fold while earnings grew seven-fold during the period.

Shareholders who paid 97x EV/EBIT have seen a 70% drawdown in M3's shares. It's important to a close eye on valuations even when fundamentals are strong.

ChemoMetec - Enabled by cell-based therapy

Return: 20,053%

ChemoMetec is a manufacturer of cell counting and analysis equipment for the life sciences industry and was founded in 1997 in Denmark. ChemoMetec's first product came in 1999 through a license agreement with Tetra Laval, and in 2000, the first NucleoCounter NC-100 was launched. NucleoCounter users can perform automated cell counting analyses of mammalian white blood cells in a blood sample, used by researchers, pharmaceuticals and hospitals to gain better perspectives on potential viruses and bacteria and gauge the progress of an immune system, among other applications.

The NucleoCounter is still ChemoMetec's core product, but there are more applications and variations beyond the NC-100, such as the NC-200, NC-250, NC-3000 and NC-202. These instruments have a fluorescence microscope with a built-in camera and images can be analysed when connected to a computer via its cell counting software. The ChemoMetec cassettes, test kits and reagents are sold to users as consumables alongside the core NucleoCounter device. These consumables currently make up 40% of ChemoMetec's current sales.

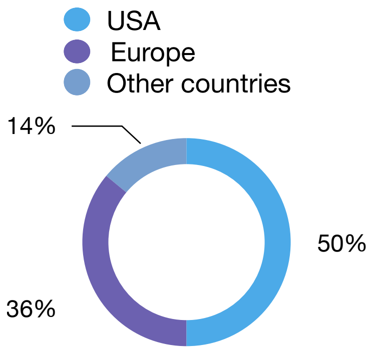
Image: ChemoMetec's core product are its NucleoCounters (left). The NucleoCounter's are used with consumables like reagents, cassettes, and the Lysis Buffer solution. (Rose Scientific)

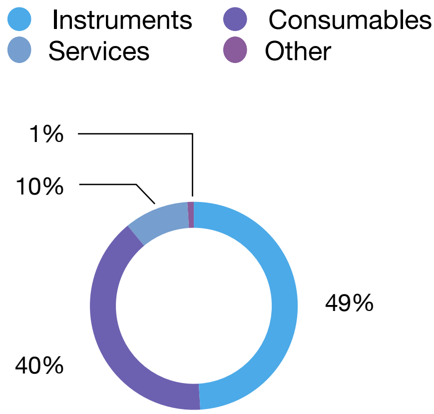
There are six key applications for ChemoMetec's products;

- Cell-based therapy
- Gene therapy
- Stem cell therapy

- Bioprocessing
- Analysis of animal semen
- Production and process control of beer

The first four applications are grouped together and often called the LCB market (life science research, cell-based research and bioprocessing) and currently represent 90% of ChemoMetec's sales. The LCB market is growing 7% per year and ChemoMetec's overall share is around 20% of the market, making it one of the three market leaders.





A breakdown of ChemoMetec's sales by geography (left) and product type (right)

Investment Case

There is a lot of industry jargon in the description above, but this is typical in the life sciences and biotechnology industry. At its core, ChemoMetec is very similar to the Gillette model and you can think of the NucleoCounter as the razor blade in the Gillette model. The NucleoCounter's have four key customer segments;

- Research and development bodies
- Hospitals and laboratories
- Pharmaceutical and biotech companies
- Manufacturing companies in beer production

The NucleoCounter has varying prices but is typically around $20,000 per device. The consumables such as the test kits, cassettes and reagents are like the blade in the Gillette model and are more recurring in sales and sold via ChemoMetec's global team of distributors.

There are a few reasons why ChemoMetec has been quite successful. As we learned from M3, healthcare companies of all types need to fulfil the following;

- Better result/more accurate/higher quality
- Cheaper price
- Easier to use and access
- More minimal invasive

Users have many options in cell counting, from the manual cell counting method, which requires a hemocytometer, to the automated cell counting techniques which the NucleoCounter falls under. The cassettes that come with the NucleoCounter allow you to load the cell sample very quickly and efficiently. Once the cassette is inserted, users can get their results presented on the connected computer within a few seconds, which is much faster than the traditional method. The one area ChemoMetec fails is in price and its high NucleoCounter price makes it unattractive for university students, where cost is critical.

Cell-based therapy

The growth of the cell-based therapy market has become ChemoMetec's most significant driving factor. In 2012, the phrase "cell-based therapy" was not mentioned in its annual report, but in its latest copy, it was mentioned 37 times! An application is in CAR-T therapy, where cancer patients are injected with a dose of immune cells, subsequently initiating an attack on the patient's cells. Cell counters like the NucleoCounter NC-202 are essential during the therapy, and as more therapies get approved, the higher the demand for cell counters like the NucleoCounter will increase.

Another key driver for ChemoMetec has been the growing compliance requirements and documentation of cell counting results. Documentation means the need for devices to be automated and connected to imaging software is more crucial and has also accelerated the role of automated cell counters. From a compliance view, research consumables need to be fixed and consistent across all instruments, which has also increased the demand for ChemoMetec's consumables division.

Overall, the many driving factors alongside its broadened portfolio of cell counters and consumables dramatically changed ChemoMetec's fortunes. Between 2012-2022, revenues and operating profits compounded by 25% and 62% CAGR, and operating profit margins increased from 0.8% to 46% during the period. As its financials improved, the market re-rated its multiples from 1.9x EV/Revenue (50.6x EV/EBIT) in 2012 to 36x EV/Revenue (79.3x EV/EBIT).

Lesson

ChemoMetec was the best performing healthcare company in the subset group with a total return of 20,054% (69.9% CAGR) over the ten years. But from its IPO in 2006 till 2015, an investor would have made 0% on its stock. Investors had paid 296x EV/EBIT or 18x EV/Revenue for ChemoMetec despite growth being extremely lumpy and operating profit margins not justifying high multiples (6.4% in 2007).

We certainly would have missed out on their investment pitch due to our lack of knowledge of the overall cytometry industry and its application. The change in ChemoMetec's prospects wasn't necessarily due to controllable factors or a new product. It was due to the rise in cell-based therapies, which management hadn't even predicted. This emphasises the importance of being aware of the broader trends and applications occurring in the wider space, especially in more innovation-focused industries like healthcare and information technology. For every successful company that benefits from the broader shifts as ChemoMetec did, there are hundreds of companies with products or services that become obsolete due to factors and innovation beyond their control. Investors who had studied the rise of cell-based therapy would have understood the opportunity for companies enabled by its impact, like ChemoMetec, Sartorius and CellaVision. There's no substitute for learning in investing.

Kr. m	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021
Revenue	39.2	41.4	45.2	61.2	85.2	90.3	112.7	175.5	214.1	281.1
Cost Of Goods Sold	4.2	4.4	4.6	9.0	12.9	10.1	13.2	16.9	20.2	27.8
Gross Profit	35.0	37.0	40.6	52.2	72.3	80.2	99.5	158.6	193.9	253.3
Op. Cost	34.7	35.5	39.0	46.4	56.4	69.8	75.2	104.5	112.4	137.3
EBIT	0.3	1.5	1.6	5.8	15.9	10.4	24.3	54.1	81.5	116.0

EBIT Margin	0.8%	3.5%	3.6%	9.5%	18.7%	11.5%	21.5%	30.8%	38.1%	41.3%
EBIT Growth	(60.4%)	377.5%	12.7%	254.1%	172.8%	(34.5%)	133.1%	122.7%	50.6%	42.4%

EV/ Revenue	1.73x	1.48x	1.61x	5.86x	7.73x	6.12x	8.55x	16.88x	26.65x	53.80x
EV/EBIT	62.11x	39.97x	36.82x	90.93x	54.21x	58.59x	46.48x	58.65x	78.74x	129.51x

ChemoMetec's fortunes changed with the increasing adoption of cell-based therapy in healthcare. Operating profit margins increased from 0.8% to 41.3% between 2012 and 2021.

ChemoMetec is a rare example of an outperformer starting from high multiples (62x EV/EBIT). The high fixed cost and room for significant margin expansion meant the potential for earnings growth was quite high.

At 130x EV/EBIT today with an EBIT margin of 41%, one should not expect the same return potential going forward.

Ten lessons on global outperformance

There was a lot to unpack in our study of global outperformers so we understand if some sections were skipped while others may need to be revisited. While reviewing the past provides great data points, information and insights, applying the wisdom in the present and the frameworks for the future is what truly matters in investing. We have put together ten crucial learning points and lessons we believe achieving global outperformance as an investor requires.

You may notice a few lessons slightly contradict each other; lessons 3 and 4. This isn't a mistake but is the reality of what is required from investors that outperform. If we had to separate the most significant trait that differentiates outperformers from the average is outperformers know how to balance contrasting frameworks, philosophies and mental models; combining a big picture mindset (seeing a forest) with attention to the little details (seeing trees), being both value and growth investing, analysing both bottom-up and top-down or being patient while also knowing when an investor needs to be aggressive.

1. Open-mindedness and flexibility

While various characteristics, geographies and industries are likely to produce more outperformers than other areas, great investments can come from anywhere. Investors (including me) have many biases that may help but can also hurt their journey to achieving outperformance.

- "I don't invest in cyclical sectors like materials and industrials"
- "I only invest in fast growth companies growing revenue 40% per year"
- "I don't invest in companies with political ownership"
- "I don't invest in emerging markets"
- "I only invest in companies that have recently gone public"

These are just some of the many quotes we tell ourselves that lead to missing out on many great investments. As many growth funds do, investing in only technology, healthcare and consumer industries would have missed out on 40% of the other outperformers from cyclical sectors like materials and industrials. Investing in only developed markets would also have led you to miss out on 37% of the outperformers. As we explored in this research, open-mindedness and flexibility are essential to global outperformance. That said, investment flexibility is not a substitute for due diligence. Every investment requires you to understand its business model and key drivers.

2. The future is Asia

59% of the global outperformers over the past decade came from Asia, yet, Asia only represents 10% of global mutual fund portfolios. We admit that there is some recency bias here, but the insights we gained during our research gives us many reasons to be optimistic about Asia despite the headlines. First, 40% of the global GDP comes from Asia, compared to 34% ten years ago and 26% 20 years ago. During the same 20 year period, Europe fell from 31% to 23% while North America fell from 36% to 28%. The economic catch-up we saw among the Asian countries in key indicators like economic output, the standard of living and technological advancements has created many growth-minded businesses.

As we learned, the economic progress did not necessarily trickle into the Asian stock market as many Asian countries underperformed the MSCI World Index. The reason behind this underperformance was that the larger companies tended to be slower growth conglomerates and SOEs with less favourable economics. If you look beyond these companies, there's an enormous range of fantastic companies available. You can read the Airports of Thailand and Phat Dat Real Estate investment case studies to see how some Asian companies benefitted from the broader macroeconomic trends.

Second, Asian equities are more under-researched and often have bigger valuation gaps than their western peers. In industries dominated by Asian companies, like semiconductors, IT services and healthcare, we saw many Asian companies with better economics and more growth potential priced at much lower multiples than their western counterparts. Indian IT services, for example, made most of the revenue in US dollars via their foreign subsidiaries but were priced like domestic Indian companies during volatile currency years like 2016.

Investing in Asia is no different from investing elsewhere. As we learned from the Japanese and Chinese reviews (see the geography section), fear and greed similarly drive markets, and investors should not blindly buy into country themes due to macro sentiment and market popularity. Investing in an MSCI

China ETF would have returned just 1.32% annualised over 30 years despite the 40-fold rise in its GDP. Themes and specific stocks fundamentals are different, which brings us to the next point on thematic investing.

3. The strengths and pitfalls of thematic investing

Thematic investing is one of the financial inventions we saw explode during the decade via the creation of ETFs, active mutual funds and other investment options. Outperformers like MSCI, Bure Equity AB and Impax Asset Management directly benefitted from thematic investing as their business models relied on the success of various themes. Thinking in investment themes is a good framework for a bigger picture lens into potential outperformers.

The most prominent theme over the decade was the rise of sustainable energy and a well-thought-out theme process could have directed you to outperformers like BYD and Tesla in renewable cars, Vestas Wind System and Terna Energy in wind energy, LONGi Green Energy and Enphase Energy in solar photovoltaic energy.

The danger with an overreliance on thematic investing is that it sometimes distracts one from what truly matters, the fundamentals. For every Tesla and BYD, hundreds of companies similarly had a great thematic story but yet failed to have any material share price gains over the decade. An example was Giga Solar Materials which similarly saw gold in solar photovoltaic energy like LONGi Green Energy but returned -24% over the decade. Another example was RWE Aktiengesellschaft, Germany's largest renewable utility company. RWE even had a better story than Terna Energy in wind energy, given its the second largest wind utility company. Yet, it only returned 19% during the decade despite its market domination and over 120 years of experience.

Finding the right theme is only 10% of the investment journey. What matters is identifying the handful of winners that are undervalued by the market with great potential, and not every company with a great thematic story will qualify as a great investment. Before we revisit more lessons on fundamentals, let's explore thematic investing put to good use as a screening tool.

4. Value chain investing

Screening provides an investor with an efficient process to scan through the 50,000+ listed companies via various metrics, but some companies do not necessarily screen well but yet have significant upside. An EBIT margin >0% filter would have missed out on the cyclical companies that were loss-making during the financial year, i.e. Sony Group in 2012. An EV/EBIT <10x filter would also miss out on high growth, high multiple companies like Amazon that were undervalued despite their high multiples, i.e. Amazon in 2012.

One process we learned, especially when applied to high growth and new theme sectors, is called the value chain investment process. Civilisation every now and then ushers in a new industry that revolutionises how we do things, and many beneficiaries may not screen well at first glance. In these cases, focusing on the value chain rather than metric-based screening processes is much more helpful. Let's walk through an application of the value chain investment process.

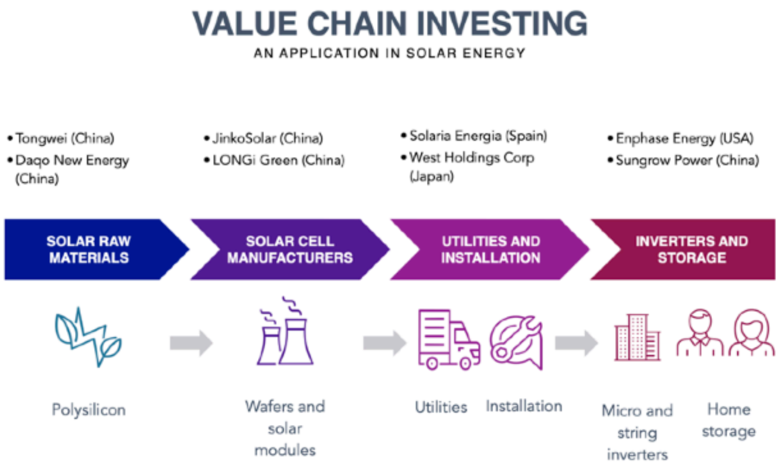
Value chain investing: solar energy

In the early 2010s, governments, consumers, and other stakeholders began demanding and investing heavily in alternative energy generation, and by 2012, it was clear solar energy would become one of these alternatives as it grew 76% in the US and doubled in capacity in China. Many companies were also preparing for the solar expansion, but the difficulty was that the industry was still niche, and it was unclear who the winners would be.

These situations are ideal for the value chain investment process, which requires one to:

- Build a flow chart of how a product/service is created, distributed, sold and consumed by the end-user
- Identify what determines the price, quantity, variable and fixed costs of each segment
- Identify the current market leaders and the sections that already show high earnings potential

Overall, 26 of the 446 outperformers directly benefitted from the rise of solar energy, while another 20 companies were second-order beneficiaries of it. The chart below shares a simplified solar energy value chain from raw materials to



residential and non-residential energy consumers. As you will see, the value chain process provides a much clearer picture than attempting to screen by metrics or traditional investing methods. Let's explore each process and how they contributed to the outperformers.

Raw materials (silicon): Polysilicon is the key raw material used in making solar cells (polysilicon is melted to form ingots). The two largest listed producers, Tongwei and Daqo New Energy were among the outperformers. Although Daqo was much smaller than it is today, it was already among the leaders in polysilicon production. If you relied on a profit-led quantitative screen in 2012, you would have missed out on Daqo. They were profitable in 2011 but temporarily suspended plants in Wanzhou, which moved the group into losses in 2012. By 2014, Daqo was back into profitability with EBIT margins at 18%.

Solar cell manufacturers: Solar cell manufacturers are, on average, less profitable than polysilicon companies as they spend more on sales and marketing while being equally cyclical. The growth opportunity was still present, and outperformers like JinkoSolar and LONGi Green benefitted from the growth of solar energy.

A golden rule in commodity investing is to search for value-added producers with more advanced products, which allows them to earn higher margins. LONGi Green was one of these companies, thanks to its monocrystalline silicon wafers. Due to their charge carrier flow, their wafers have superior solar performance compared to polysilicon-based PVs.

Value chain investors would notice LONGi Green has more than double JinkoSolar's margins (higher prices, lower marketing costs, higher profits). In 2013, LONGi was selected among the most innovative companies in the world and became the largest global manufacturer of monocrystalline wafers. LONGi also had the highest share price appreciation among the producers, with a 4,734% return as earnings grew almost 100-fold between 2013 and 2021!

Utilities, installation and project management: The solar wafer and module manufacturers then sell their products to customers, typically utility and project management companies. This section is not economically attractive, but due to government support such as subsidies and feed-in tariffs, utility companies can earn good margins and scale fast. An example of a utility beneficiary was Solaria Energia.

Spain has one of the hottest climates in Europe, which is great for solar energy, and Solaria Energia was the first solar company to list on the Madrid stock exchange. Solaria, like many solar players, did not screen well in 2012. Solaria was slightly different from others because it had just discontinued its legacy solar PV production plants to focus more on solar installation across Spain, Italy and Latin America. Value chain investors who studied the polysilicon market would have noticed that solar, compared to other forms of energy, is more of a "winner take most" industry. This will have helped you understand why Solaria needed to re-focus its business strategy due to the Chinese dominance, cost and scale advantages. Solaria later went from a loss margin of -23% in 2012 to a profit margin of 39% by 2017 and returned 7,126%.

Other utility and installation companies like Enlight Renewable Energy in Israel, West Holdings in Japan and Super Energy in Thailand similarly benefitted from the growing consumer demand for solar energy.

Storage and inverters: Consumers can either connect their homes to the national grid or install solar panels on their roofs. Solar panels generate direct current (DC) electricity which needs to be converted to alternative current (AC) for grid use. Without inverters, the solar panel system is useless to households. Margins can be fairly attractive and also less cyclical than solar PV manufacturers as well. Sungrow Power was among the direct beneficiaries of the growth of inverters for both residential and commercial large scale use and is currently the second largest manufacturer. By 2008, Sungrow was already profitable and has maintained profitability every year since then with revenues compounding 40% CAGR over the past decade.

Another type of inverter are microinverters which connect directly to each solar panel rather than the overall system. The market here is smaller, more expensive, requires a longer installation process but can be more efficient for small residential buildings. Microinverters may seem like a new innovation, but in 2008, Enphase Energy had already released its first inverter and by 2012, Enphase Energy commanded a 20% market share in North America. Enphase Energy however, did not screen well due to its then loss margins, but at just 0.2x EV/Revenue and a market leadership in a big and growing industry, it's not a surprise to see it become an outperformer.

As you can see, focusing more on the value chain provides a deeper insight into how an industry truly works because it portrays a better picture of what drives growth and profitability. Of course, we have some hindsight bias and one can not substitute value chain analysis for stock picking. It only serves as a screening tool to support company-focused research.

Your turn

Now try applying the value chain investing process to discovering some potential beneficiaries of future trends and growth themes you see. Remember, not every exciting theme works out, and you must ensure the technology/theme creates real value for society, i.e. makes society cleaner, allows us to do things easier, faster, safer, more accurately or reliably. It would be better to focus on companies with their business segments concentrated on the theme, which provides better exposure to the upside. Other energy companies like Shell, BP and TotalEnergies also had some solar operations, but they achieved very different results because their business segments were concentrated in other energy applications.

Once you map your value chain, circle the segments you think have the opportunity for value-added products, as LONGi Green did with its monocrystalline solar panels. Other key points and questions you may want to highlight are;

- Who has the lowest cost of production?
- Who is growing market share the fastest? Why?
- Which players are likely to earn the best profit margins? Why?

Once those are answered, select your top five companies and compare the results to what you had in your stock screener.

5. Disciplined optimism


Trump's China Deal Creates Collateral Damage for Tech Firms

Micron secured some gains from the China deal but it may end up suffering bigger losses from the broader U.S.-China battle.


Defying Expectations, Japan's Economy Falls Into Recession


UK equity market descends into 'uninvestable' zone

While the decade was a bull run for global markets, there were many reasons to be bearish on countries and themes that went on to produce various outperformers (Wall Street Journal and the Financial Times)

There were many reasons to have removed your money from the stock market during the past decade. Greece commenced the decade with a severe debt crisis but still produced as many outperformers as the Netherlands and Switzerland combined. The US-China trade wars should have made outperforming in sectors like semiconductors and Chinese solar energy impossible. Brexit in the UK should have made the financials sector "uninvestable". The Japanese economy fell into an unexpected recession in 2014, and market commentators advised foreign investors to withdraw their investments.

We can go on, but it is clear that investors willing to look beyond the noise, focus on fundamentals and maintain the stomach for the short term volatility will do better. Despite the bad and depressing news shown in the headlines, 446 companies returned more than 1,000%, even in sectors and countries that should have been uninvestable. As we have shown in this research, what matters are the facts, and if the facts are in your favour, it's vital to maintain an optimistic mindset.

5b. "Disciplined"

As we saw in recent months in 2022, it is easy for markets and valuations to get carried away with sentiment and euphoria. The global outperformers were not immune to this, as 18% have currently declined by more than -30% over the past nine months. Companies like Hypoport in Germany, Magazine Luiza in Brazil, and Benefit One in Japan have each fallen by more than -60% since their peak multiples at more than 100x EV/EBIT. No matter how great the fundamentals are, everything has a price, and it is vital to create reality check tools to ensure valuations are realistic. Some of the methods we have learned from this study is ensuring profitable companies in their steady state have an EV/EBIT/future growth outlook of less than <1-1.5x.

6. Long term and patience

Compared to 60 years ago, the average holding period of common stocks has fallen from 8 years to just 5.5 months. Of course, many trading strategies can equally generate outperformance with very short holding periods, but investors without genuine skill in these strategies are much better off with a long term mindset. By a long term mindset, we do not necessarily mean forever - only 18% (55 of 300 companies) that returned more than 1,000% between 2002 and 2012 went on to return more than 500% between 2012 and 2022. In a long term mindset, we mean thinking in years, not days or weeks. The optimal period for cyclical and turnaround companies is between 3-5 years, while compounders may be between 5-10 years from our estimates. (If the price remains attractive, shares should be held longer)

Despite the outperformance over the decade, 46% of the subset companies had a total return of less than 20% (9.5% annualised), while 36% had returned negative within the first two years (2011-2013). If an investor had set a rule to sell companies with a negative share price return after two years, you would have missed out on great companies like NVIDIA, Netflix, ANTA Sports, SalMar and Abbott India. Some of the best-performing stocks like ChemoMetec, which returned more than 20,000%, would also have been missed.

The short term performance of stocks says nothing about the fundamentals, which is why we avoided posting images of stock charts during this research.

7. Cyclical growth

While every industry has some form of cyclicality, 47% of the global outperformers came from the more cyclical industries like mining, energy, construction, airlines, banking, semiconductors, peripheral hardware, leisure consumer services, and discretionary retail, among others. It is common for growth and quality investors to avoid these sectors due to their industry cycles and thus miss out on some fantastic cyclical businesses.

There is also a myth that investing in cyclical industries requires you to time investing to the nearest day, week or month. Many outperformers proved this to be false. You could have bought ANTA Sports at the top of the Chinese sports apparel cycle (two years after the Beijing Olympics in September 2010) and still returned 21.3% per year in the following 11 years. Another example is Bajaj Finserv which is heavily exposed to the Indian insurance market. India's life insurance premiums fell by -10% in 2012 and then by -6% in 2013, causing Bajaj's shares to fall by -40% during that period. If you bought their shares at the 2012 peak, you would have still annualised a return of 29% in the following ten years.

Chinese lithium miners like Ganfeng Lithium had a similar case. Still, they more than doubled their share price in the following five years after the 2017 lithium price bubble burst.

The common theme across all these cyclical companies was that they grew their business volumes over the years to compensate for the price bumps. Of course, your potential return would be more attractive if you timed things perfectly, but bad timing can still lead to great long term results if the growth opportunity and price paid is at a discount.

8. Turnarounds

Turnarounds represented a significant number of outperformers which surprised our expectations. Businesses struggle for many reasons; management may expand into new products and markets that distract them from the core operations. A rival company creates a superior product or service. After years of market leadership, bureaucracy and complacency kick in, leading to declining profits and revenue growth.

As we learned from the turnaround case studies like Adobe, ANTA Sports, Britannia industries and Neste Oyj, they can also have very attractive returns, especially when they transition into growth companies post-turnaround. For turnarounds to become successful investments, they need;

- Identifiable and solvable problems
- Measurable indicators to gauge turnaround progress
- High potential for upside (mainly due to negative market sentiment)

A good framework for turnaround investing is what Nick Sleep, an investor we admire, calls destination analysis. Let's apply a road trip analogy to understand this framework. Before setting out on a road trip, you want to know the distance of the journey, the speed you need to drive, and the time it takes to get there.

Distance: The distance in the destination analysis framework for turnaround investing is the potential upside - how a business could look like if it turns its operations around, i.e. three times more revenue or four times more annual profits, among others. In most cases, operating profit margins may increase (Neste Oyj went from 1.7% to 14.8%), and earnings grow faster than in the past (Trex grew its earnings fivefold in the following three years).

Speed and time: To arrive at your destination quickly, you need to drive quickly, and so do turnarounds. We typically prefer non-product-led turnarounds as these are much easier to solve. If the issue is ineffective marketing, management can reallocate the marketing budget, which could improve sales quickly. If the problem is distribution, new logistics partners can be swiftly signed, boosting inventory capabilities in the short term.

Good turnarounds can be achieved quickly, but the best turnarounds have "destination shortcuts". With ANTA Sports, the other Chinese sports brands were doing much worse and later went bankrupt, leaving the sports apparel market less competitive. A less competitive market meant it could recover faster (speed and time) and achieve a larger revenue share(distance). ANTA was back in top EBIT margins within three years. Neste had a unique destination shortcut too. Because its renewable diesel was much cleaner than fossil fuels, governments were willing to subsidise Neste's renewable diesel, making it easier for Neste to win clients, grow their volumes (speed and time), and earn better profit margins and profit growth (distance).

You can review some investment case studies again to see how the destination analysis applies there and then, on your own, attempt the framework for future turnarounds. Remember, you want:

- Investments that have a long distance (huge upside)
- Turnarounds that can be solved with simple and quick fixes (speed and time)
- Have potential destination shortcuts due to the external environment

9. Creativity and imagination

Destination shortcuts, as explained above, can apply to any investment style and even boring stalwarts and cyclical companies. But spotting these shortcuts requires pattern recognition, creativity and imagination. In the solar energy value chain case study, we explored how polysilicon's growth drove the demand for microinverters. Creativity in investing requires one to quickly spot this flow chart and see the opportunities even beyond microinverters, to the potential of energy storage at home, the impact on electric vehicles and lithium, and more.

Creativity and imagination is what truly differentiates top investors from their peers. When others see just one investment case from an insight, creative investors see five different investment cases via the ripple effects. Of course, some people naturally have this ability, but there are ways to develop them as investors. One way to improve your investment creativity is by studying history, as we have done in this research. Reviewing both good and bad investment cases, studying great entrepreneurs and managers and reading how various innovations impacted society. Thanks to the internet, information edge is no longer as valuable, given how decentralised information has become. Decades ago, one had to wait days to receive an annual report. Now, anyone anywhere can obtain the required data in seconds. The future edge to outperformance is the ability to turn minimal information into insights, wisdom and great investment ideas.

In the appendix section below, we included the tables of all 446 outperformers and sorted them by industry. An exercise for you is to link some investment cases with big picture charts and assess how their value chain charts progressed over time. One chart you might find worth reviewing is in cell-based therapy.

10. Turning over new rocks

The rise of ultra-long-term outperformers like Amazon in the US, Relaxo Footwear Limited in India and Vitec Software in Sweden have lured many investors into exclusively focusing on compounders that can grow and achieve outperformance for many years. The problem with this strategy is that only a handful of companies actually achieve outperformance for decades. Among the companies that returned more than 1,000% between 2002-2012, only 23 of 300 companies were among the 446 outperformers between 2012-2022.

The difficulty in continuous outperformance boils down to the law of large numbers, market forces and valuations. If we assess the subset group of outperformers today, only 12.5% of the profitable companies have an EV/EBIT below 10x, which is well below the 48.9% the subset group had in 2012. From an EV/Revenue, the difference is even more striking. Only 4.7% of the subset list is currently valued below 1x EV/Revenue, compared to the 50.7% we identified in 2012 (see pages 18-19).

Global outperformers can not always last forever. Business models which seemed risky to market participants become investor darlings (i.e. the subscription model, see Adobe case study). Sectors in a downturn experience an upturn, and their improved fundamentals become reflected in the price (i.e. semiconductors, see Lasertec case study). Geographic regions which seem risky, gloomy and filled with economic problems turn out to be not as bad as market participants thought (i.e. Greece, see Hellenic Telecoms distressed investing case study). These and many more factors make outperformance more difficult after the first few years.

The solution is to turn over new rocks, examine new ideas, search for new sectors and industries in downturns with depressed valuations, explore business models the markets are overly pessimistic on, and identify new founders and management sell-side research analysts may have neglected.

As we have learned, investing is about the future, not the past.

Appendix

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Table of outperformers by Industry

Company Name and Ticker	Share price return	Industry
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Saregama India Limited (BSE:532163)	5,366.8	Communication Services
Nexstar Media Group, Inc. (NasdaqGS:NXST)	2,542.8	Communication Services
ValueCommerce Co., Ltd. (TSE:2491)	2,368.9	Communication Services
Toei Animation Co.,Ltd. (TSE:4816)	2,354.2	Communication Services
CD Projekt S.A. (WSE:CDR)	2,262.2	Communication Services
Netflix, Inc. (NasdaqGS:NFLX)	2,078.6	Communication Services
YouGov plc (AIM:YOU)	1,892.8	Communication Services
PT Indoritel Makmur Internasional Tbk. (IDX:DNET)	1,340.0	Communication Services
Gray Television, Inc. (NYSE:GTN)	1,318.7	Communication Services
Hellenic Telecommunications Organization S.A. (ATSE:HTO)	1,260.8	Communication Services
GungHo Online Entertainment, Inc. (TSE:3765)	1,259.9	Communication Services
TechTarget, Inc. (NasdaqGM:TTGT)	1,259.3	Communication Services
JYP Entertainment Corporation (KOSDAQ:A035900)	1,185.9	Communication Services
Koei Tecmo Holdings Co., Ltd. (TSE:3635)	1,166.5	Communication Services
AfreecaTV Co., Ltd. (KOSDAQ:A067160)	1,162.4	Communication Services
Next Fifteen Communications Group plc (AIM:NFC)	1,111.1	Communication Services
PVR Limited (NSEI:PVR)	1,106.2	Communication Services
Info Edge (India) Limited (NSEI:NAUKRI)	1,066.3	Communication Services
Tesla, Inc. (NasdaqGS:TSLA)	12,751.9	Consumer Discretionary

Company Name and Ticker	Share price return	Industry
UNO Minda Limited (BSE:532539)	8,470.6	Consumer Discretionary
K.P.R. Mill Limited (BSE:532889)	7,720.6	Consumer Discretionary
JBM Auto Limited (BSE:532605)	7,071.8	Consumer Discretionary
Garware Technical Fibres Limited (BSE:509557)	5,995.5	Consumer Discretionary
Tadiran Group Ltd (TASE:TDRN)	4,942.6	Consumer Discretionary
Trident Limited (BSE:521064)	4,762.7	Consumer Discretionary
Relaxo Footwears Limited (BSE:530517)	4,481.4	Consumer Discretionary
HLB Co., Ltd. (KOSDAQ:A028300)	4,460.4	Consumer Discretionary
Vaibhav Global Limited (BSE:532156)	3,658.6	Consumer Discretionary
create restaurants holdings inc. (TSE:3387)	2,799.1	Consumer Discretionary
Jindal Worldwide (BSE:531543)	2,568.4	Consumer Discretionary
Ananti Inc. (KOSDAQ:A025980)	2,376.8	Consumer Discretionary
Sundaram-Clayton Limited (BSE:520056)	2,256.6	Consumer Discretionary
TVS Motor Company Limited (BSE:532343)	2,066.5	Consumer Discretionary
Maytronics Ltd. (TASE:MTRN)	1,965.2	Consumer Discretionary
JD Sports Fashion plc (LSE:JD.)	1,703.7	Consumer Discretionary
Shoei Co., Ltd. (TSE:7839)	1,675.7	Consumer Discretionary
BYD Company Limited (SEHK:1211)	1,674.4	Consumer Discretionary
Balkrishna Industries (BSE:502355)	1,643.7	Consumer Discretionary
Vipshop Holdings Limited (NYSE:VIPS)	1,590.9	Consumer Discretionary

Company Name and Ticker	Share price return	Industry
Sundram Fasteners (NSEI:SUNDRMFAST)	1,463.3	Consumer Discretionary
Suprajit Engineering(BSE:532509)	1,440.7	Consumer Discretionary
Johnson Controls-Hitachi Air Conditioning India (BSE:523398)	1,410.8	Consumer Discretionary
ES-CON JAPAN Ltd. (TSE:8892)	1,386.4	Consumer Discretionary
Page Industries (NSEI:PAGEIND)	1,362.0	Consumer Discretionary
ANTA Sports Products Limited (SEHK:2020)	1,307.2	Consumer Discretionary
Humansoft Holding Company K.S.C.P. (KWSE:HUMANSOFT)	1,228.5	Consumer Discretionary
China Tourism Group Duty Free Corporation Limited (SHSE:601888)	1,203.1	Consumer Discretionary
Games Workshop Group PLC (LSE:GAW)	1,199.1	Consumer Discretionary
Magazine Luiza S.A. (BOVESPA:MGLU3)	1,175.9	Consumer Discretionary
Jumbo Interactive Limited (ASX:JIN)	1,164.8	Consumer Discretionary
Goldwin Inc. (TSE:8111)	1,147.2	Consumer Discretionary
Lithia Motors, Inc. (NYSE:LAD)	1,146.8	Consumer Discretionary
Welspun India Limited (BSE:514162)	1,140.3	Consumer Discretionary
Changzhou Xingyu Automotive Lighting Systems Co.,Ltd. (SHSE:601799)	1,133.1	Consumer Discretionary
Trent Limited (BSE:500251)	1,125.0	Consumer Discretionary
Eicher Motors(BSE:505200)	1,114.5	Consumer Discretionary
Trigano S.A. (ENXTPA:TRI)	1,111.9	Consumer Discretionary
Domino's Pizza, Inc. (NYSE:DPZ)	1,082.6	Consumer Discretionary
Maharashtra Scooters Ltd. (BSE:500266)	1,077.7	Consumer Discretionary

Company Name and Ticker	Share price return	Industry
Nojima Corporation (TSE:7419)	1,068.2	Consumer Discretionary
Feng Tay Enterprises Co., Ltd. (TWSE:9910)	1,059.4	Consumer Discretionary
Sony Group Corporation (TSE:6758)	1,053.8	Consumer Discretionary
Aristocrat Leisure Limited (ASX:ALL)	1,053.2	Consumer Discretionary
Amazon.com, Inc. (NasdaqGS:AMZN)	1,029.2	Consumer Discretionary
MercadoLibre, Inc. (NasdaqGS:MELI)	1,018.8	Consumer Discretionary
Celsius Holdings, Inc. (NasdaqCM:CELH)	17,555.3	Consumer Staples
Avanti Feeds Limited (BSE:512573)	5,916.8	Consumer Staples
Kobe Bussan Co., Ltd. (TSE:3038)	4,466.2	Consumer Staples
Gujarat Ambuja Exports Limited (BSE:524226)	3,533.6	Consumer Staples
MGP Ingredients, (NasdaqGS:MGPI)	2,844.1	Consumer Staples
Norway Royal Salmon AS (OB:NRS)	2,587.8	Consumer Staples
Kotobuki Spirits Co., Ltd. (TSE:2222)	2,562.5	Consumer Staples
SalMar ASA (OB:SALM)	2,300.0	Consumer Staples
Hatsun Agro Product Limited (BSE:531531)	2,174.2	Consumer Staples
Grieg Seafood ASA (OB:GSF)	2,158.1	Consumer Staples
Triveni Engineering & Industries Limited (BSE:532356)	2,027.6	Consumer Staples
CCL Products (India) Limited (BSE:519600)	1,701.2	Consumer Staples
Pakistan Tobacco Company Limited (KASE:PAKT)	1,672.9	Consumer Staples
Tongwei Co.,Ltd (SHSE:600438)	1,644.8	Consumer Staples

Company Name and Ticker	Share price return	Industry
P/F Bakkafrost (OB:BAKKA)	1,461.3	Consumer Staples
Britannia Industries (NSEI:BRITANNIA)	1,264.6	Consumer Staples
Constellation Brands, Inc. (NYSE:STZ)	1,172.5	Consumer Staples
RIZAP GROUP, Inc. (SPSE:2928)	1,085.2	Consumer Staples
PT Siantar Top Tbk (IDX:STTP)	1,069.0	Consumer Staples
The a2 Milk Company Limited (NZSE:ATM)	1,030.4	Consumer Staples
KRBL Limited (NSEI:KRBL)	1,021.2	Consumer Staples
Texas Pacific Land Corporation (NYSE:TPL)	2,636.8	Energy
Mari Petroleum Company Limited (KASE:MARI)	2,351.1	Energy
VERBIO Vereinigte BioEnergie AG (XTRA:VBK)	1,852.3	Energy
Neste Oyj (HLSE:NESTE)	1,624.5	Energy
Aegis Logistics Limited (BSE:500003)	1,517.2	Energy
Headwater Exploration Inc. (TSX:HWX)	1,364.0	Energy
Pantheon Resources Plc (AIM:PANR)	1,287.6	Energy
Serica Energy plc (AIM:SQZ)	1,010.6	Energy
Bajaj Finance Limited (NSEI:BAJFINANCE)	7,060.5	Financials
Capri Global Capital Limited (BSE:531595)	4,238.6	Financials
East Money Information Co.,Ltd. (SZSE:300059)	4,200.8	Financials
Krungthai Card Public Company Limited (SET:KTC)	3,657.7	Financials
eGuarantee, Inc. (TSE:8771)	2,266.2	Financials

Company Name and Ticker	Share price return	Industry
Can Fin Homes Limited (BSE:511196)	2,238.3	Financials
Tradegate AG Wertpapierhandelsbank (DB:T2G)	2,078.5	Financials
Hypoport SE (XTRA:HYQ)	2,066.0	Financials
LOLC Holdings (COSE:LOLC.N0000)	2,013.1	Financials
Cholamandalam Investment and Finance Company (BSE:511243)	1,920.4	Financials
Bupa Arabia for Cooperative Insurance Company (SASE:8210)	1,880.8	Financials
Bajaj Finserv Ltd. (NSEI:BAJAJFINSV)	1,872.5	Financials
Hithink RoyalFlush Information Network Co., Ltd. (SZSE:300033)	1,842.4	Financials
goeasy Ltd. (TSX:GSY)	1,622.4	Financials
B. Riley Financial, (NasdaqGM:RILY)	1,330.3	Financials
OCI International Holdings Limited (SEHK:329)	1,284.9	Financials
Meritz Financial (KOSE:A138040)	1,245.7	Financials
MSCI Inc. (NYSE:MSCI)	1,208.3	Financials
HUB24 Limited (ASX:HUB)	1,190.4	Financials
Financial Products Group Co., Ltd. (TSE:7148)	1,095.8	Financials
Old Second Bancorp, Inc. (NasdaqGS:OSBC)	1,056.8	Financials
Pinnacle Investment Management Group Limited (ASX:PNI)	3,200.0	Financials
China Investment Fund Company Limited (SEHK:612)	2,177.3	Financials
Impax Asset Management Group plc (AIM:IPX)	1,625.5	Financials
eQ Oyj (HLSE:EQV1V)	1,231.4	Financials

Company Name and Ticker	Share price return	Industry
Bure Equity AB (publ) (OM:BURE)	1,097.2	Financials
Liontrust Asset Management PLC (LSE:LIO)	1,050.5	Financials
ChemoMetec A/S (CPSE:CHEMM)	20,053.8	Health Care
Caplin Point Laboratories Limited (BSE:524742)	14,720.7	Health Care
Pro Medicus Limited (ASX:PME)	14,181.4	Health Care
Genmab A/S (CPSE:GMAB)	4,931.0	Health Care
Revenio Group Oyj (HLSE:REG1V)	3,925.0	Health Care
Repligen Corporation (NasdaqGS:RGEN)	3,921.3	Health Care
Sartorius Stedim Biotech S.A. (ENXTPA:DIM)	3,272.3	Health Care
NatureCell Co.,Ltd. (KOSDAQ:A007390)	3,192.9	Health Care
Sartorius Aktiengesellschaft (XTRA:SRT3)	2,825.8	Health Care
Vitrolife AB (publ) (OM:VITR)	2,790.0	Health Care
Granules India Limited (BSE:532482)	2,720.6	Health Care
PolyNovo Limited (ASX:PNV)	2,706.8	Health Care
DexCom, Inc. (NasdaqGS:DXCM)	2,669.0	Health Care
Biotage AB (publ) (OM:BIOT)	2,662.5	Health Care
J. B. Chemicals & Pharmaceuticals Limited (BSE:506943)	2,514.1	Health Care
Formycon AG (XTRA:FYB)	2,332.8	Health Care
Poly Medicure Limited (BSE:531768)	2,331.1	Health Care
Sam Chun Dang Pharm. Co., Ltd (KOSDAQ:A000250)	2,147.5	Health Care
Horizon Therapeutics Public Limited Company (NasdaqGS:HZNP)	2,142.3	Health Care
Addus HomeCare Corporation (NasdaqGS:ADUS)	1,992.8	Health Care
Aier Eye Hospital Group Co., Ltd. (SZSE:300015)	1,973.3	Health Care
CellaVision AB (publ) (OM:CEVI)	1,959.5	Health Care
Ajanta Pharma (NSEI:AJANTPHARM)	1,946.1	Health Care
Sarepta Therapeutics, Inc. (NasdaqGS:SRPT)	1,767.8	Health Care
Hanmi Science Co., (KOSE:A008930)	1,737.4	Health Care
JEOL Ltd. (TSE:6951)	1,679.7	Health Care
Grand Pharmaceutical Group Limited (SEHK:512)	1,676.9	Health Care
Sectra AB (publ) (OM:SECT B)	1,597.6	Health Care
Lonza Group AG (SWX:LONN)	1,572.1	Health Care
EL.En. S.p.A. (BIT:ELN)	1,563.3	Health Care
AMN Healthcare Services, Inc. (NYSE:AMN)	1,515.0	Health Care
HLB Life Science Co., Ltd. (KOSDAQ:A067630)	1,419.4	Health Care
Imugene Limited (ASX:IMU)	1,400.2	Health Care
Alembic Pharmaceuticals Limited (NSEI:APLLTD)	1,378.8	Health Care
Japan Lifeline Co., Ltd. (TSE:7575)	1,374.9	Health Care
Zhangzhou Pientzehuang Pharmaceutical., Ltd (SHSE:600436)	1,319.1	Health Care
Beacon Pharmaceuticals Ltd. (DSE:BEACONPHAR)	1,309.8	Health Care
Neurocrine Biosciences, Inc. (NasdaqGS:NBIX)	1,297.5	Health Care

Company Name and Ticker	Share price return	Industry
CVS Group plc (AIM:CVSG)	1,290.7	Health Care
Topchoice Medical Corporation (SHSE:600763)	1,283.4	Health Care
Chongqing Zhifei Biological Products Co., Ltd. (SZSE:300122)	1,263.8	Health Care
JCR Pharmaceuticals Co., Ltd. (TSE:4552)	1,224.9	Health Care
Laboratorios Farmaceuticos Rovi, S.A. (BME:ROVI)	1,219.2	Health Care
Ambu A/S (CPSE:AMBU B)	1,218.3	Health Care
West Pharmaceutical Services, Inc. (NYSE:WST)	1,198.7	Health Care
Abiomed, Inc. (NasdaqGS:ABMD)	1,197.1	Health Care
Oneness Biotech Co., Ltd. (TPEX:4743)	1,192.1	Health Care
M3, Inc. (TSE:2413)	1,186.8	Health Care
Catalyst Pharmaceuticals, (NasdaqCM:CPRX)	1,180.2	Health Care
Abbott India Limited (BSE:500488)	1,169.7	Health Care
Evotec SE (XTRA:EVT)	1,157.3	Health Care
Sikarin Public Company Limited (SET:SKR)	1,148.0	Health Care
Universal Vision Biotechnology Co., Ltd. (TPEX:3218)	1,133.3	Health Care
Oscotec Inc. (KOSDAQ:A039200)	1,130.6	Health Care
Alnylam Pharmaceuticals, (NasdaqGS:ALNY)	1,128.5	Health Care
BioLife Solutions, Inc. (NasdaqCM:BLFS)	1,125.0	Health Care
Karo Pharma AB (publ) (OM:KARO)	1,108.3	Health Care
Simulations Plus, Inc. (NasdaqGS:SLP)	1,099.0	Health Care

Company Name and Ticker	Share price return	Industry
CSPC Pharmaceutical Group Limited (SEHK:1093)	1,094.7	Health Care
ACADIA Pharmaceuticals Inc. (NasdaqGS:ACAD)	1,070.3	Health Care
Insulet Corporation (NasdaqGS:PODD)	1,059.0	Health Care
Molina Healthcare, Inc. (NYSE:MOH)	1,037.7	Health Care
Thermo Fisher Scientific Inc. (NYSE:TMO)	1,024.3	Health Care
Hexatronic Group AB (publ) (OM:HTRO)	22,055.0	Industrials
S-Pool, Inc. (TSE:2471)	15,359.4	Industrials
HLE Glascoat Limited (BSE:522215)	10,319.4	Industrials
Pentamaster Corporation Berhad (KLSE:PENTA)	8,096.4	Industrials
KEI Industries Limited (BSE:517569)	7,062.6	Industrials
DIP Corporation (TSE:2379)	6,841.4	Industrials
Astral Limited (BSE:532830)	6,705.4	Industrials
Olectra Greentech Limited (BSE:532439)	5,614.2	Industrials
Invisio AB (publ) (OM:IVSO)	5,068.3	Industrials
GMM Pfaudler Limited (BSE:505255)	4,932.6	Industrials
PT Temas Tbk. (IDX:TMAS)	4,718.2	Industrials
Frontken Corporation Berhad (KLSE:FRONTKN)	4,466.7	Industrials
EVE Energy Co., Ltd. (SZSE:300014)	4,216.1	Industrials
Realord Group Holdings Limited (SEHK:1196)	4,103.2	Industrials
Expolanka Holdings PLC (COSE:EXPO.N0000	3,693.9	Industrials

Company Name and Ticker	Share price return	Industry
Benefit One Inc. (TSE:2412)	2,557.0	Industrials
Escorts Kubota Limited (NSEI:ESCORTS)	2,466.9	Industrials
Air Canada (TSX:AC)	2,338.5	Industrials
Vestas Wind Systems A/S (CPSE:VWS)	2,307.0	Industrials
Sungrow Power Supply Co., Ltd. (SZSE:300274)	2,186.4	Industrials
Marlowe plc (AIM:MRL)	2,102.4	Industrials
KNR Constructions Limited (BSE:532942)	2,074.1	Industrials
Cargojet Inc. (TSX:CJT)	1,987.4	Industrials
STEICO SE (XTRA:ST5)	1,970.0	Industrials
PT Samudera Indonesia Tbk (IDX:SMDR)	1,844.4	Industrials
MonotaRO Co., Ltd. (TSE:3064)	1,815.5	Industrials
GEK TERNA Holdings, Real Estate, Construction S.A. (ATSE:GEKTERNA)	1,786.8	Industrials
Axon Enterprise, Inc. (NasdaqGS:AXON)	1,784.0	Industrials
OUTSOURCING Inc. (TSE:2427)	1,770.4	Industrials
Daifuku Co., Ltd. (TSE:6383)	1,749.7	Industrials
Ashtead Group plc (LSE:AHT)	1,703.3	Industrials
Jet2 plc (AIM:JET2)	1,669.7	Industrials
Trex Company, Inc. (NYSE:TREX)	1,651.8	Industrials
Cera Sanitaryware Limited (BSE:532443)	1,570.8	Industrials
Builders FirstSource, Inc. (NYSE:BLDR)	1,543.7	Industrials

Company Name and Ticker	Share price return	Industry
Fullcast Holdings Co., Ltd. (TSE:4848)	1,532.0	Industrials
SMS Co., Ltd. (TSE:2175)	1,514.0	Industrials
Plug Power Inc. (NasdaqCM:PLUG)	1,507.0	Industrials
Nihon M&A Center Holdings Inc. (TSE:2127)	1,506.8	Industrials
SITC International Holdings Company Limited (SEHK:1308)	1,500.0	Industrials
Teleperformance SE (ENXTPA:TEP)	1,497.0	Industrials
V-Guard Industries Limited (BSE:532953)	1,415.4	Industrials
Delta Plus Group (ENXTPA:ALDLT)	1,391.6	Industrials
XANO Industri AB (publ) (OM:XANO B)	1,359.2	Industrials
Beijing Easpring Material Technology CO.,LTD. (SZSE:300073)	1,358.7	Industrials
Casella Waste Systems, Inc. (NasdaqGS:CWST)	1,314.6	Industrials
Grindwell Norton Limited (BSE:506076)	1,304.0	Industrials
MBB SE (XTRA:MBB)	1,303.3	Industrials
ID Logistics Group SA (ENXTPA:IDL)	1,271.8	Industrials
Saia, Inc. (NasdaqGS:SAIA)	1,270.2	Industrials
NIBE Industrier AB (publ) (OM:NIBE B)	1,261.6	Industrials
Shenzhen Inovance Technology Co.,Ltd (SZSE:300124)	1,256.3	Industrials
Transport Corporation of India Limited (BSE:532349)	1,253.9	Industrials
Old Dominion Freight Line, Inc. (NasdaqGS:ODFL)	1,233.9	Industrials
Bizlink Holding Inc. (TWSE:3665)	1,184.9	Industrials

Company Name and Ticker	Share price return	Industry
Avis Budget Group, Inc. (NasdaqGS:CAR)	1,181.3	Industrials
Kajaria Ceramics Limited (BSE:500233)	1,172.4	Industrials
Fluidra, S.A. (BME:FDR)	1,150.8	Industrials
Airports of Thailand Public Company Limited (SET:AOT)	1,134.5	Industrials
Takeuchi Mfg. Co., Ltd. (TSE:6432)	1,123.0	Industrials
Elco Ltd. (TASE:ELCO)	1,120.7	Industrials
Judges Scientific plc (AIM:JDG)	1,119.5	Industrials
Wan Hai Lines Ltd. (TWSE:2615)	1,116.2	Industrials
Beijer Ref AB (publ) (OM:BEIJ B)	1,115.4	Industrials
Timken India Limited (BSE:522113)	1,048.1	Industrials
Ceres Power Holdings plc (AIM:CWR)	1,040.4	Industrials
Boyd Group Services Inc. (TSX:BYD)	1,020.4	Industrials
Addtech AB (publ.) (OM:ADDT B)	1,018.0	Industrials
Vicor Corporation (NasdaqGS:VICR)	1,017.9	Industrials
Kingspan Group plc (ISE:KRX)	1,015.5	Industrials
Jasmine Technology Solution Public Company Limited (SET:JTS)	23,283.5	Information Technology
Tanla Platforms Limited (BSE:532790)	22,460.2	Information Technology
Lasertec Corporation (TSE:6920)	10,225.8	Information Technology
Altium Limited (ASX:ALU)	8,117.1	Information Technology
Tata Elxsi Limited (BSE:500408)	8,058.1	Information Technology

Company Name and Ticker	Share price return	Industry
cBrain A/S (CPSE:CBRAIN)	3,790.9	Information Technology
Sonata Software Limited (BSE:532221)	3,581.7	Information Technology
L&F Co., Ltd. (KOSDAQ:A066970)	3,372.7	Information Technology
AEM Holdings Ltd. (SGX:AWX)	3,263.0	Information Technology
secunet Security Networks Aktiengesellschaft (XTRA:YSN)	3,137.0	Information Technology
Mitsui High-tec, Inc. (TSE:6966)	3,114.5	Information Technology
NOTE AB (publ) (OM:NOTE)	3,051.9	Information Technology
PT Metrodata Electronics Tbk (IDX:MTDL)	3,043.0	Information Technology
GMO Payment Gateway, Inc. (TSE:3769)	3,028.5	Information Technology
Borosil Renewables Limited (BSE:502219)	2,954.3	Information Technology
Basler Aktiengesellschaft (XTRA:BSL)	2,850.4	Information Technology
Reply S.p.A. (BIT:REY)	2,796.0	Information Technology
Inari Amertron Berhad (KLSE:INARI)	2,787.0	Information Technology
Mastek Limited (BSE:523704)	2,779.8	Information Technology
D & O Green Technologies Berhad (KLSE:D&O)	2,600.0	Information Technology
Enphase Energy, Inc. (NasdaqGM:ENPH)	2,598.4	Information Technology
JAPAN MATERIAL Co., Ltd. (TSE:6055)	2,591.0	Information Technology
adesso SE (XTRA:ADN1)	2,584.8	Information Technology
Nemetschek SE (XTRA:NEM)	2,558.4	Information Technology
JustSystems Corporation (TSE:4686)	2,392.1	Information Technology

Company Name and Ticker	Share price return	Industry
Monolithic Power Systems, Inc. (NasdaqGS:MPWR)	2,297.0	Information Technology
Alchip Technologies, Limited (TWSE:3661)	2,258.1	Information Technology
KCE Electronics Public Company Limited (SET:KCE)	2,236.3	Information Technology
eMemory Technology Inc. (TPEX:3529)	2,184.9	Information Technology
Rand Worldwide, Inc. (OTCPK:RWWI)	2,177.6	Information Technology
Constellation Software Inc. (TSX:CSU)	2,150.4	Information Technology
Persistent Systems Limited (BSE:533179)	2,094.4	Information Technology
Luxshare Precision Industry Co., Ltd. (SZSE:002475)	2,017.9	Information Technology
BE Semiconductor Industries N.V. (ENXTAM:BESI)	1,952.6	Information Technology
NAURA Technology Group Co., Ltd. (SZSE:002371)	1,945.5	Information Technology
Infomart Corporation (TSE:2492)	1,913.8	Information Technology
Mindtree Limited (NSEI:MINDTREE)	1,834.4	Information Technology
EPAM Systems, Inc. (NYSE:EPAM)	1,834.4	Information Technology
Digital Arts Inc. (TSE:2326)	1,812.6	Information Technology
4iG Nyrt. (BUSE:4IG)	1,797.5	Information Technology
My E.G. Services Berhad (KLSE:MYEG)	1,793.1	Information Technology
RDC Semiconductor Co., Ltd. (TPEX:3228)	1,745.2	Information Technology
Esker SA (ENXTPA:ALESK)	1,723.5	Information Technology
Quest Holdings S.A. (ATSE:QUEST)	1,666.9	Information Technology
Broadcom Inc. (NasdaqGS:AVGO)	1,652.7	Information Technology

Company Name and Ticker	Share price return	Industry
China Zhenhua (Group) Science & Technology Co., Ltd (SZSE:000733)	1,575.6	Information Technology
Advanced Micro Devices, Inc. (NasdaqGS:AMD)	1,575.3	Information Technology
Tokyo Electron Limited (TSE:8035)	1,566.1	Information Technology
Foxsemicon Integrated Technology Inc. (TWSE:3413)	1,549.1	Information Technology
Unigroup Guoxin Microelectronics Co., Ltd. (SZSE:002049)	1,538.0	Information Technology
Delta Electronics (Thailand) Public Company Limited (SET:DELTA)	1,501.9	Information Technology
JinkoSolar Holding Co., Ltd. (NYSE:JKS)	1,471.0	Information Technology
HMS Networks AB (publ) (OM:HMS)	1,420.7	Information Technology
Clearfield, Inc. (NasdaqGM:CLFD)	1,407.3	Information Technology
Cadence Design Systems, Inc. (NasdaqGS:CDNS)	1,407.2	Information Technology
GFT Technologies SE (XTRA:GFT)	1,400.0	Information Technology
Nova Ltd. (NasdaqGS:NVMI)	1,381.5	Information Technology
Lagercrantz Group AB (publ) (OM:LAGR B)	1,380.3	Information Technology
MCJ Co., Ltd. (TSE:6670)	1,374.6	Information Technology
Forth Corporation Public Company Limited (SET:FORTH)	1,369.7	Information Technology
HANMI Semiconductor Co., Ltd. (KOSE:A042700)	1,360.4	Information Technology
Jay Mart Public Company Limited (SET:JMART)	1,358.5	Information Technology
DATAGROUP SE (XTRA:D6H)	1,349.3	Information Technology
ASML Holding N.V. (ENXTAM:ASML)	1,344.7	Information Technology
Entegris, Inc. (NasdaqGS:ENTG)	1,339.2	Information Technology

Company Name and Ticker	Share price return	Industry
Ubiquiti Inc. (NYSE:UI)	1,302.5	Information Technology
Axcelis Technologies, Inc. (NasdaqGS:ACLS)	1,297.7	Information Technology
Lam Research Corporation (NasdaqGS:LRCX)	1,294.2	Information Technology
Fortinet, Inc. (NasdaqGS:FTNT)	1,284.2	Information Technology
Information Services International-Dentsu, Ltd. (TSE:4812)	1,259.3	Information Technology
Camtek Ltd. (NasdaqGM:CAMT)	1,254.6	Information Technology
RichWave Technology Corporation (TWSE:4968)	1,249.6	Information Technology
Adobe Inc. (NasdaqGS:ADBE)	1,241.3	Information Technology
Tokai Carbon Korea Co., Ltd. (KOSDAQ:A064760)	1,238.8	Information Technology
Accton Technology Corporation (TWSE:2345)	1,225.7	Information Technology
Napco Security Technologies, Inc. (NasdaqGS:NSSC)	1,220.5	Information Technology
Daejoo Electronic Materials Co., Ltd. (KOSDAQ:A078600)	1,219.3	Information Technology
LEENO Industrial Inc. (KOSDAQ:A058470)	1,215.7	Information Technology
ULVAC, Inc. (TSE:6728)	1,204.8	Information Technology
Zhejiang Jingsheng Mechanical & Electrical Co., Ltd. (SZSE:300316)	1,189.8	Information Technology
Firstsource Solutions Limited (BSE:532809)	1,180.9	Information Technology
ASMedia Technology Inc. (TWSE:5269)	1,175.9	Information Technology
Micron Technology, Inc. (NasdaqGS:MU)	1,164.4	Information Technology
Mycronic AB (publ) (OM:MYCR)	1,163.9	Information Technology
Episil Technologies Inc. (TPEX:3707)	1,158.7	Information Technology

Company Name and Ticker	Share price return	Industry
OBIC Co.,Ltd. (TSE:4684)	1,147.9	Information Technology
AudioCodes Ltd. (NasdaqGS:AUDC)	1,147.8	Information Technology
Coforge Limited (NSEI:COFORGE)	1,147.3	Information Technology
Honeywell Automation India Limited (BSE:517174)	1,134.0	Information Technology
Addnode Group AB (publ) (OM:ANOD B)	1,132.1	Information Technology
Wavestone SA (ENXTPA:WAVE)	1,118.4	Information Technology
ATOSS Software AG (XTRA:AOF)	1,117.6	Information Technology
Gold Circuit Electronics Ltd. (TWSE:2368)	1,102.7	Information Technology
Kingdee International Software Group Company Limited (SEHK:268)	1,100.0	Information Technology
AVIC Jonhon Optronic Technology Co.,Ltd. (SZSE:002179)	1,089.4	Information Technology
Keyence Corporation (TSE:6861)	1,063.2	Information Technology
One Software Technologies Ltd (TASE:ONE)	1,062.4	Information Technology
TIS Inc. (TSE:3626)	1,058.5	Information Technology
Aubay Société Anonyme (ENXTPA:AUB)	1,056.6	Information Technology
SINBON Electronics (TWSE:3023)	1,045.1	Information Technology
Lattice Semiconductor Corporation (NasdaqGS:LSCC)	1,038.3	Information Technology
Applied Materials, (NasdaqGS:AMAT)	1,035.4	Information Technology
Malaysian Pacific Industries Berhad (KLSE:MPI)	1,005.7	Information Technology
Hilan Ltd. (TASE:HLAN)	1,002.6	Information Technology
Alkyl Amines Chemicals Limited (BSE:506767)	13,548.8	Materials

Company Name and Ticker	Share price return	Industry
Deepak Nitrite Limited (BSE:506401)	12,373.6	Materials
Frontier Lithium Inc. (TSXV:FL)	9,328.6	Materials
Bharat Rasayan Limited (NSEI:BHARATRAS)	9,219.4	Materials
Balaji Amines Limited (BSE:530999)	8,556.1	Materials
APL Apollo Tubes Limited (BSE:533758)	5,935.7	Materials
SRF Limited (BSE:503806)	5,754.3	Materials
Unipar Carbocloro S.A. (BOVESPA:UNIP6)	5,112.2	Materials
Aarti Industries Limited (BSE:524208)	4,455.8	Materials
Navin Fluorine International Limited (BSE:532504)	4,454.7	Materials
Atul Ltd (BSE:500027)	3,991.9	Materials
Vinati Organics Limited (BSE:524200)	3,627.5	Materials
Rupert Resources Ltd. (TSXV:RUP)	3,500.0	Materials
Press Metal Aluminium Holdings Berhad (KLSE:PMETAL)	3,328.1	Materials
KAMA Holdings Limited (BSE:532468)	3,267.4	Materials
Liontown Resources Limited (ASX:LTR)	3,190.8	Materials
Chalice Mining Limited (ASX:CHN)	3,161.5	Materials
Lithium Americas Corp. (TSX:LAC)	2,849.5	Materials
PI Industries Limited (BSE:523642)	2,777.1	Materials
Ganfeng Lithium Co., Ltd. (SZSE:002460)	2,749.2	Materials
Vicostone Joint Stock Company (HNX:VCS)	2,685.0	Materials

Company Name and Ticker	Share price return	Industry
PT. Chandra Asri Petrochemical Tbk (IDX:TPIA)	2,590.8	Materials
Ratnamani Metals & Tubes Limited (BSE:520111)	2,568.4	Materials
Toyo Gosei Co.,Ltd. (TSE:4970)	2,387.7	Materials
DCM Shriram Limited (BSE:523367)	2,055.2	Materials
Privi Speciality Chemicals Limited (BSE:530117)	2,013.3	Materials
Dongwha Enterprise Co.,Ltd (KOSDAQ:A025900)	1,793.8	Materials
Core Lithium Ltd (ASX:CXO)	1,665.8	Materials
Supreme Petrochem Limited (BSE:500405)	1,651.7	Materials
Kazan Public Joint Stock Company Organichesky sintez (MISX:KZOS)	1,641.0	Materials
RHI Magnesita India Limited (BSE:534076)	1,610.2	Materials
GHCL Limited (NSEI:GHCL)	1,600.1	Materials
Beijing Oriental Yuhong Waterproof Technology Co., Ltd. (SZSE:002271)	1,546.4	Materials
Hansol Chemical Co., Ltd. (KOSE:A014680)	1,544.0	Materials
SP Group A/S (CPSE:SPG)	1,537.2	Materials
J.K. Cement Limited (BSE:532644)	1,525.5	Materials
Polyplex Corporation Limited (BSE:524051)	1,514.5	Materials
Solar Industries India Limited (BSE:532725)	1,439.8	Materials
Public Joint Stock Company Acron (MISX:AKRN)	1,437.1	Materials
Shandong Sinocera Functional Material (SZSE:300285)	1,431.7	Materials
Hoa Phat Group(HOSE:HPG)	1,422.2	Materials

Company Name and Ticker	Share price return	Industry
Century Iron and Steel Industrial Co.,Ltd. (TWSE:9958)	1,342.9	Materials
PT Barito Pacific Tbk (IDX:BRPT)	1,339.7	Materials
Lloyds Metals and Energy Limited (BSE:512455)	1,333.2	Materials
Jiangsu Yangnong Chemical Co., Ltd. (SHSE:600486)	1,310.6	Materials
Pidilite Industries Limited (BSE:500331)	1,274.4	Materials
Finolex Industries Limited (BSE:500940)	1,247.6	Materials
Northern Star Resources Limited (ASX:NST)	1,225.9	Materials
JCU Corporation (TSE:4975)	1,210.9	Materials
public stock company VSMPO-AVISMA Corporation (MISX:VSMO)	1,201.7	Materials
Treatt plc (LSE:TET)	1,193.9	Materials
Wesdome Gold Mines Ltd. (TSX:WDO)	1,150.5	Materials
Berger Paints India Limited (BSE:509480)	1,133.8	Materials
Dottikon Es Holding AG (SWX:DESN)	1,129.3	Materials
Miwon Commercial Co., Ltd. (KOSE:A002840)	1,078.3	Materials
Tianqi Lithium Corporation (SZSE:002466)	1,072.8	Materials
Public Joint Stock Company Polyus (MISX:PLZL)	1,052.9	Materials
Greatland Gold plc (AIM:GGP)	1,028.2	Materials
Afrimat Limited (JSE:AFT)	1,014.0	Materials
StorageVault Canada Inc. (TSX:SVI)	2,985.7	Real Estate

Company Name and Ticker	Share price return	Industry
Prashkovsky Investments and Construction Ltd. (TASE:PRSK)	2,952.6	Real Estate
Mega Or Holdings Ltd (TASE:MGOR)	1,578.4	Real Estate
Stendörren Fastigheter AB (publ) (OM:STEF B)	1,560.7	Real Estate
Lifestyle Communities Limited (ASX:LIC)	1,510.5	Real Estate
Brigade Enterprises (BSE:532929)	1,345.6	Real Estate
Phat Dat Real Estate Development (HOSE:PDR)	1,291.0	Real Estate
Fastighets AB Balder (publ) (OM:BALD B)	1,261.3	Real Estate
BASSAC Société anonyme (ENXTPA:BASS)	1,138.1	Real Estate
Y.H. Dimri Construction & Development Ltd (TASE:DIMRI)	1,055.3	Real Estate
Israel Canada (T.R) Ltd (TASE:ISCN)	1,869.1	Real Estate
Summit Real Estate Holdings Ltd (TASE:SMT)	1,757.7	Real Estate
Argan SA (ENXTPA:ARG)	1,044.0	Real Estate
Solaria Energía y Medio Ambiente, S.A. (BME:SLR)	7,126.7	Utilities
Enlight Renewable Energy Ltd (TASE:ENLT)	2,143.5	Utilities
Terna Energy Societe Anonyme Commercial Technical Company (ATSE:TENERGY)	1,864.5	Utilities
West Holdings Corporation (TSE:1407)	1,158.7	Utilities
Super Energy Corporation Public Company Limited (SET:SUPER)	1,080.6	Utilities

GLOBAL OUTPERFORMERS

The research in Global Outperformers initially set out to be an internal paper where the Jenga team wanted to understand what drives outperformance in public equity markets.

We soon realised outperformers come in different shapes, sizes, countries and industries and decided to write this book to share what we learnt from studying over 400+ companies that returned 1,000% in 10 years.

Jenga Investment Partners Ltd is a regulated investment company based in London, United Kingdom. It was founded in 2021 by Dede Eyesan. Jenga seeks to invest in listed companies across the world with a fundamental approach.